H3C S5810 Series Ethernet Switches

Installation Manual

Hangzhou H3C Technologies Co., Ltd.

Manual Version: 6W100-20090626

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About This Manual

Organization

H3C S5810 Series Ethernet Switches Installation Manual is organized as follows:

Chapter	Contents
1 Product Overview	Briefly introduces the appearance, system description, as well as the features and applications of the H3C S5810 series switches.
2 Installation Preparations	Describes the requirements on installation site, the safety recommendations before and during installation, and the required tools.
3 Installing a Switch	Covers the procedures for installing the H3C S5810 series, ground wire connection, power module installation, interface module installation, and so on.
4 Initial Power-On	Helps you get familiar with the basic knowledge of how to boot and configure the H3C S5810 series, including device startup, power-on, and initialization of system files, and so on.
5 Loading Software	Introduces how to loading application files and upgrading the Boot ROM program by using the host software package.
6 Maintenance and Troubleshooting	Introduces how to maintain software and hardware of the H3C S5810 series.
Appendix	Appendix A: Lightning protection of the H3C S5810 series switch.

Conventions

The manual uses the following conventions:

GUI conventions

Convention	Description
< >	Button names are inside angle brackets. For example, click <OK>.
[ ]	Window names, menu items, data table and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forward slashes. For example, [File/Create/Folder].

Symbols

Convention	Description
Warning	Means reader be extremely careful. Improper operation may cause bodily injury.
Caution	Means reader be careful. Improper operation may cause data loss or damage to equipment.
Note	Means a complementary description.

Related Documentation

Manual	Description
H3C PSR300-12A & PSR300-12D1 Power Modules User Manual	Introduces the features, specifications, installation and removal of the PSR300-12A and PSR300-12D1 power modules.
H3C LSW1FAN & LSW1BFAN Installation Manual	Introduces the features, specifications, installation and removal of the LSW1FAN and LSW1BFAN fan modules.

Obtaining Documentation

You can access the most up-to-date H3C product documentation on the World Wide Web at this URL: http://www.h3c.com.

The following are the columns from which you can obtain different categories of product documentation:

[Products & Solutions]: Provides information about products and technologies.

[Technical Support & Document > Technical Documents]: Provides several categories of product documentation, such as installation, configuration, and maintenance.

[Technical Support & Document > Software Download]: Provides the documentation released with the software version.

Documentation Feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Environmental Protection

This product has been designed to comply with the requirements on environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

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1 Product Overview

Overview

The H3C S5810 Series Ethernet Switches (hereinafter referred to as the S5810 series) are high-performance gigabit Ethernet switches developed by Hangzhou H3C Technologies Co., Ltd. (hereinafter referred to as H3C). The S5810 series adopt advanced hardware structure design and provide excellent inbound/outbound cache capability. The dual power module slot design enhances the device availability, making the device applicable to the Top of Rack application at data centers.

The H3C S5810 series includes the following two models, and has the system specifications as shown in Table 1-1.

- S5810-50S
- S5810-50S-DC

Table 1-1 The S5810 series system specifications

Item		S5810-50S/S5810-50S-DC
Dimensions (H × W × D)		43.6 × 440 × 420 mm (1.72 × 17.32 × 16.54 in.)
Weight		< 8 kg (17.64 lb)
Service port		Forty-eight 10/100/1000Base-T auto-sensing Ethernet ports Two 100/1000Base-X SFP Combo ports Two 10 GE SFP+ interfaces
Console port		1
Management Ethernet port		1
USB interface		1 A-type USB interface
Input voltage	AC	Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz Max voltage range: 90 VAC to 264 VAC, 47/63 Hz
	DC	Rated voltage range: –48 VDC to –60 VDC Max voltage range: –40.5 VDC to –72 VDC
Power consumption		110 W
Power consumption (full configuration)		165 W
Fan		The system supports up to three fans, including: • One pluggable turbo fan • Two fans respectively on the two pluggable power modules
Operating temperature		0ºC to 45ºC (32°F to 113°F)
Operating humidity (noncondensing)		10% to 90%

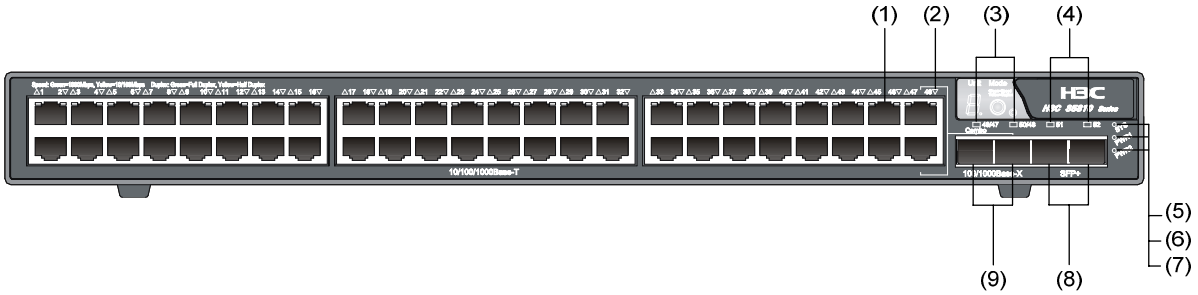
Note

The S5810-50S and S5810-50S-DC switches are similar in system specifications except that they provide different power modules when shipped.

S5810-50S

Front Panel

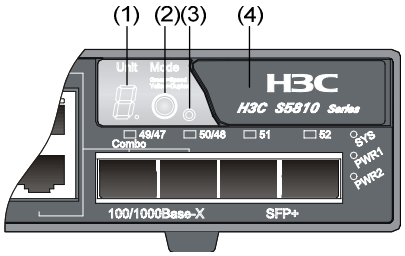
Figure 1-1 S5810-50S front panel



(1) 10/100/1000Base-T auto-sensing Ethernet port	
(2) 10/100/1000Base-T auto-sensing Ethernet port status LED	
(3) 100/1000Base-X SFP interface status LED	(4) SFP+ interface status LED
(5) System LED (SYS)	(6) Power module 1 status LED (PWR1)
(7) Power module 2 status LED (PWR2)	(8) 10 GE SFP+ interface
(9) 100/1000Base-X SFP interface	

The top right area on the front panel of the S5810-50S switch is the management area. The management area provides LEDs and ports used for management and maintenance.

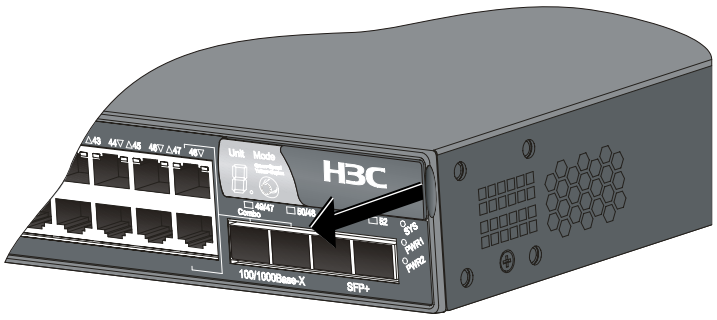
Figure 1-2 Management area of the S5810-50S switch



(1) Seven-segment LED	(2) Mode switching button of the port status LED
(3) Port mode LED	(4) Logo panel

After pulling out the logo panel, you can manage and maintain the switch through console port or USB interface.

Figure 1-3 Logo panel of the S5810 series I

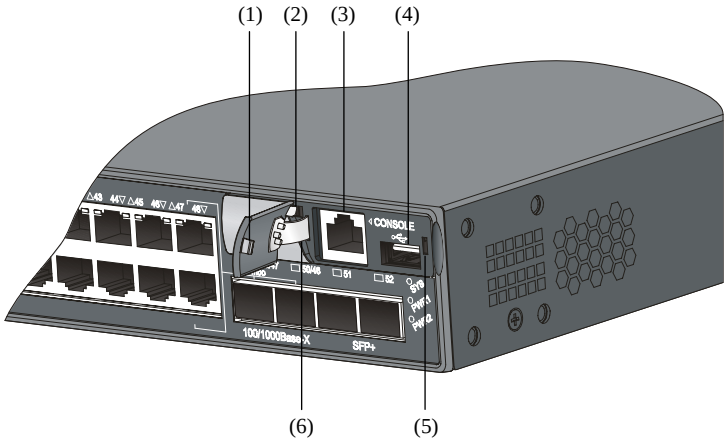


Caution

To pull out and push in the logo panel, follow these steps:

- Use your fingertip to hold the arc notch at the right edge of the logo panel, and then pull the panel out with appropriate strength. Do not try to pull from any other part of the logo panel.
- The left part of the logo panel is attached to the chassis through a rubber strip. You can rotate the strip or turn the logo panel over within the allowed elasticity of the rubber strip. Do not pull out the strip rudely or turn over the panel excessively; otherwise, the rubber strip may fall off or be broken.
- Before pushing in the logo panel, make sure that the pin on the left side of the logo panel is inserted in the corresponding recess of the chassis. Then clip the right side of the panel to the corresponding recess of the chassis, and push the logo panel until the clip is locked to the chassis. If the clip is not inserted in the recess, do not push the panel; otherwise the clip may be broken.

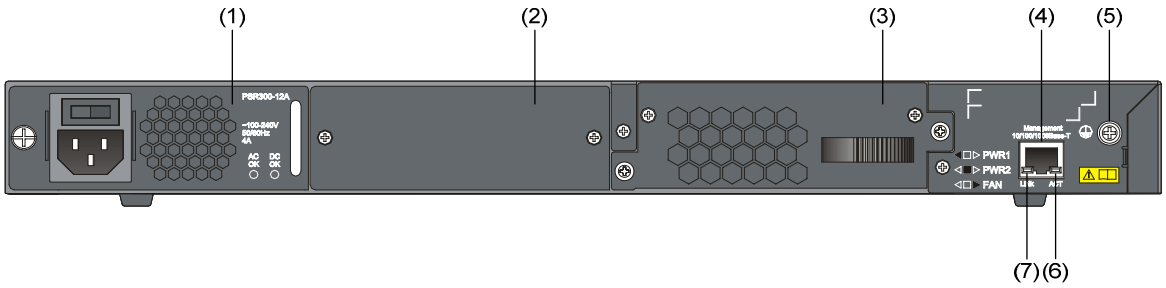
Figure 1-4 Logo panel of the S5810 series II



(1) Clip of the logo panel	(2) Pin of the logo panel
(3) Console port	(4) USB interface
(5) Position hole on the front panel	(6) Rubber strip

Rear Panel

Figure 1-5 S5810-50S rear panel



(1) AC power module 1	(2) Power module slot 2
(3) Fan tray	(4) Management Ethernet port
(5) Grounding screw	(6) Management Ethernet port status LED (ACT)
(7) Management Ethernet port status LED (LINK)	

Note

The S5810-50S provides a PSR300-12A AC power module when shipped. Power module 2 is installed with a filler panel. You can select two power modules to implement 1+1 power supply redundancy. See Hot Swappable Power Modules on page 1-14 for the power module models supported by the S5810 series. See *H3C PSR300-12A & PSR300-12D1 Power Modules User Manual* for the detailed description of the power modules.

S5810-50S-DC

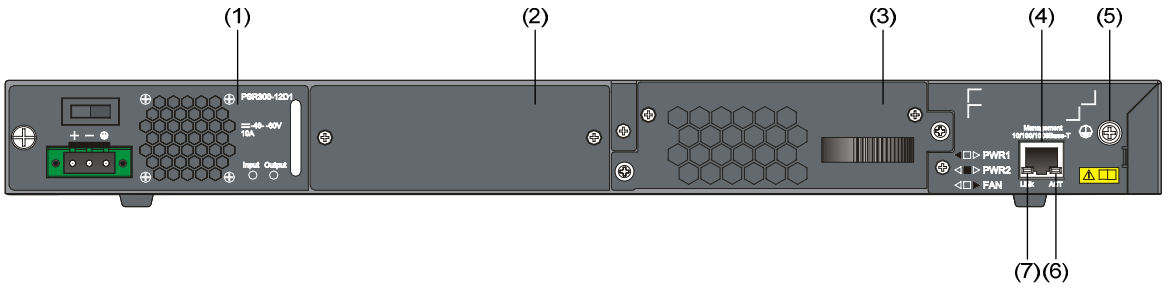
Front Panel

Note

The front panel of the S5810-50S-DC is the same as that of the S5810-50S. For related description, refer to Front Panel on page 1-2.

Rear Panel

Figure 1-6 S5810-50S-DC rear panel



(1) DC power module 1	(2) Power module slot 2
(3) Fan tray	(4) Management Ethernet port
(5) Grounding screw	(6) Management Ethernet port status LED (ACT)
(7) Management Ethernet port status LED (LINK)	

Note

The S5810-50S-DC provides a PSR300-12D1 DC power module when shipped. Power module 2 is installed with a filler panel. You can select two power modules to implement 1+1 power supply redundancy. See Hot Swappable Power Modules on page 1-14 for the power module models supported by the S5810 series. See *H3C PSR300-12A & PSR300-12D1 Power Module User Manual* for the detailed description of the power modules.

Ports

Console Port

Each S5810 series provides one console port on the front panel. Table 1-2 describes the console port specifications.

Table 1-2 Console port specifications

Item	Specification
Connector type	RJ-45
Compliant standard	EIA/TIA-232
Transmission baud rate	9600 bps to 115200 bps
Service	• It can be connected to an ASCII terminal. • It can be connected to a serial port of a local or remote (through a pair of modems) PC running terminal emulation program.
Default connection parameters	• Baud rate: 9600 bps • Data bits: 8 • Parity check: none • Stop bits: 1

Management Ethernet Port

The S5810 series provides a management Ethernet port, which connects to a computer to perform system program loading and debugging without being affected by the switching chip working status; or the management Ethernet port can be connected to a remote NMS to implement remote management of the system.

Table 1-3 S5810 series management Ethernet port specifications

Item	Specification
Connector type	RJ-45
Connector quantity	1
Port transmission rate	10/100/1000 Mbps half duplex, full duplex
Transmission medium and maximum transmission distance	Category-5 twisted pair cable, with a maximum transmission distance of 100 m (328.1 ft.)
Function and service	Host software and Boot ROM upgrade, network management

USB Interface

Each S5810 series provides a USB interface compliant with the OHC standard, supporting an upload and download speed of 12 Mbps. With this USB interface, you can access the file system on the flash of the switch to upload or download application and configuration files.

10/100/1000Base-T Ethernet Port

Each S5810 series provides forty-eight 10/100/1000Base-T Ethernet ports on its front panel. Table 1-4 describes the specifications of the 10/100/1000Base-T Ethernet ports.

Table 1-4 S5810 series 10/100/1000Base-T Ethernet port specifications

Item	Specification
Connector type	RJ-45
Interface standard	• 10 Mbps half duplex, full duplex • 100 Mbps half duplex, full duplex • 1000 Mbps half duplex, full duplex • MDI/MDI-X, auto-sensing
Max transmission distance	100 m (328.1 ft.)
Transmission medium	Category-5 unshielded twisted pair cable
Standard	IEEE 802.3i, 802.3u, 802.3ab

100/1000Base-X SFP Interface

Each S5810 series provides two 100/1000Base-X SFP interfaces on its front panel. Each SFP interface and its corresponding Ethernet port form a combo port group. Only one port is available in a combo port group at one time. Table 1-5 describes the combo port groups.

Table 1-5 Combo port groups of the S5810 series

Combo port group	SFP interface number	Ethernet port number
1	49	47
2	50	48

Table 1-6 describes the 100/1000Base-X SFP interface specifications.

Table 1-6 S5810 series 100/1000Base-X SFP interface specifications

Item	Specification
Connector type	LC (for SFP optical interface module)/RJ-45 (for SFP electrical interface module)
Work mode	Supports full duplex mode
Optical module attribute	The SFP optical module is hot swappable. The specifications vary by the SFP module models. For details, refer to Table 1-7.

You can select SFP modules listed in Table 1-7 as needed.

Table 1-7 SFP modules supported by SFP interfaces

SFP module type	SFP module		Central wavelength	Connector	Fiber	Max transmission distance
1000 Mbps SFP module	SFP-GE-SX-MM850-A		850nm	LC	50/125μm multimode optical fiber	550 m (1804.5 ft.)
					62.5/125μm multimode optical fiber	275 m (902.2 ft.)
	SFP-GE-LX-SM1310-A		1310nm		9/125μm single mode optical fiber	10 km (6.2 mi.)
	SFP-GE-LH40-SM1310					40 km (24.9 mi.)
	SFP-GE-LH40-SM1550		1550nm			40 km (24.9 mi.)
	SFP-GE-LH70-SM1550					70 km (43.5 mi.)
	SFP-GE-LX-SM1310-BIDI	Note that these two transceiver models should be used in pairs.	TX: 1310 RX: 1490	LC	9/125μm single mode optical fiber	10 km (6.2 mi.)
	SFP-GE-LX-SM1490-BIDI		TX: 1490 RX:1310			
	SFP-GE-T		—	RJ-45	Twisted pair cable	100 m (328.1 ft.)

SFP module type	SFP module		Central wavelength	Connector	Fiber	Max transmission distance
100 Mbps SFP module	SFP-FE-SX-MM1310-A		1310nm	LC	62.5/125μm multimode optical fiber	2 km (1.2 mi.)
	SFP-FE-LX-SM1310-A				9/125μm single mode optical fiber	15 km (9.3 mi.)
	SFP-FE-LH40-SM1310				9/125μm single mode optical fiber	40 km (24.9 mi.)
	SFP-FE-LH80-SM1550		1550nm		9/125μm single mode optical fiber	80 km (49.7 mi.)
	SFP-FE-LX-SM1310-BIDI	Note that these two transceiver models should be used in pairs.	TX: 1310 RX: 1550	LC	9/125μm single mode optical fiber	15 km (9.3 mi.)
	SFP-FE-LX-SM1550-BIDI		TX: 1310 RX: 1550			

Note

- You are recommended to use SFP optical modules of H3C on the S5810 series.
- The types of SFP optical modules may update with time. For information about SFP modules, contact technical support.
- For the models and specifications of each kind of optical modules, refer to *H3C Low End Series Ethernet Switches Pluggable Modules Manual*.

SFP+ Interface

Each S5810 series provides two fixed SFP+ interfaces on its front panel. You can connect SFP+ modules or SFP+ cables to the SFP+ interfaces as needed to enhance the network flexibility. Table 1-8 describes the specifications of the 10G SFP modules and SFP+ cables.

Table 1-8 Transceivers and cables supported by SFP+ interfaces

Transceiver/ Cable type	Transceiver/ Cable	Central wavelength	Connector	Fiber	Max transmission distance
10G SFP+ transceiver	SFP-XG-SX-MM850-A	850nm	LC	50/125μm multimode optical fiber	300 m (984.3 ft.)
	SFP-XG-LX220-MM1310	1310nm		62.5/125μm multimode optical fiber	220 m (721.8 ft.)
	SFP-XG-LX-SM1310			9μm/125μm single mode optical fiber	10 km (about 6.2 mi.)

Transceiver/ Cable type	Transceiver/ Cable	Central wavelength	Connector	Fiber	Max transmission distance
Short-haul 10G SFP+ cable	LSWM1STK	—	1X Infiniband	SFP+ cable	0.65 m (2.1 ft.)
	LSWM2STK				1.2 m (3.9 ft.)
	LSWM3STK				3 m (9.8 ft.)

H3C provides three types of SFP+ cables with various lengths, as shown in Figure 1-7.

Figure 1-7 SFP+ cable



(1) Connector	(2) Handle

Note

- You are recommended to use SFP+ transceivers of H3C on the S5810 series.
- The types of SFP+ transceivers may update with time. For information about transceivers, contact technical support.
- For the models and specifications of each kind of transceivers, refer to *H3C Low End Series Ethernet Switches Pluggable Modules Manual*.

LEDs

Table 1-9 LEDs

LED	Description
System status LED	See System LED on page 1-10.
Hot swappable power module LED	See Power Module Status LEDs on page 1-10.
Seven-segment LED	See Seven-Segment LED on page 1-10.
Port mode LED	See Port Mode LED on page 1-11.
10/100/1000Base-T auto-sensing Ethernet port status LED	See 10/100/1000Base-T Auto-Sensing Ethernet Port Status LED on page 1-12.
100/1000Base-X SFP interface status LED	See 100/1000Base-X SFP Interface Status LED on page 1-12.

LED	Description
SFP+ interface status LED	See SFP+ Interface Status LED on page 1-13.
Management Ethernet port status LED	See Management Ethernet Port Status LED on page 1-13.

System LED

The system status LED helps you determine the working status of the switch. Refer to Table 1-10 for the details.

Table 1-10 System LED description

LED	Status	Description
SYS	Steady green	The switch is started normally.
	Flashing green (1 Hz)	The system is performing POST.
	Steady red	POST failed.
	Flashing yellow (1 Hz)	POST on some ports failed.
	Off	The switch is powered off.

Power Module Status LEDs

The hot swappable power module status LEDs help you determine the working status of a hot swappable power module. Refer to Table 1-11 for details.

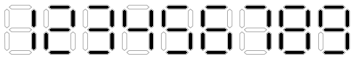
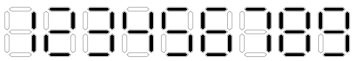
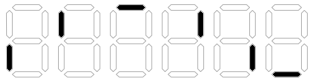
Table 1-11 Description of the power module status LEDs

Mark	Status	Status
PWR1	Steady green	Hot swappable power module slot 1 is installed with a power module, and the power input is normal.
	Steady yellow	Hot swappable power module slot 1 is installed with a power module, but an output failure occurs.
	Off	No power module is installed in hot swappable power module slot 1, or no power is input.
PWR2	Steady green	Hot swappable power module slot 2 is installed with a power module, and the power input is normal.
	Steady yellow	Hot swappable power module slot 2 is installed with a power module, but an output failure occurs.
	Off	No power module is installed in hot swappable power module slot 2, or no power is input.

Seven-Segment LED

The seven-segment LED and the system LED together indicate the operating status of the device. For details, refer to Table 1-12.

Table 1-12 Seven-segment LED description

Mark	Status		Description
	System LED (SYS) status	Seven-segment LED status	
Unit	Flashing green	The LED displays the specific numbers one by one. 	POST running. The LED displays the POST test ID.
	Flashing red	The LED flashes the specific numbers. 	POST failed. The LED flashes the POST test ID of the failed test.
	Flashing green	A bar rotates clockwise around the LED. 	Software loading
	Steady red	The LED flashes and displays **F**. 	Fan failure
	Steady red	The LED flashes and displays **t**. 	Over-temperature alarm
	Steady green	The LED displays **C**. 	The current switch is the command switch in the cluster.
		The LED displays **S**. 	The current switch is a member switch in the cluster.
		The LED displays **c**. 	The current switch is a candidate switch in the cluster.
		The LED displays the specific numbers. 	The member ID of the current switch.

Port Mode LED

The port mode LED on the S5810 series can display the working status of a port for you to obtain more device information. You can use the port mode switching button to change the status of the port mode LED.

Table 1-13 Port mode LED description

LED	Status	Description
Mode	Steady green	Indicates port rate.

LED	Status	Description
	Steady yellow	Indicates port duplex mode.

10/100/1000Base-T Auto-Sensing Ethernet Port Status LED

The port mode LED and the 10/100/1000Base-T auto-sensing Ethernet port status LED together indicate the port operation status, as shown in Table 1-14.

Table 1-14 10/100/1000Base-T auto-sensing Ethernet port LEDs description

Status		Meaning
Port mode LED	**Ethernet port status LED**	
Steady green (rate mode)	Steady green	The port operates at the rate of 1000 Mbps; the LED is fast flashing when data is being sent and/or received on the port.
	Yellow	The port operates at the rate of 10/100 Mbps; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	Power-on self test (POST) failed on the port.
	Off	No link is present on the port.
Steady yellow (duplex mode)	Steady green	The port operates in full-duplex mode; the LED is fast flashing when data is being sent and/or received on the port.
	Yellow	The port operates in half-duplex mode; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	No link is present on the port.

100/1000Base-X SFP Interface Status LED

Table 1-15 100/1000Base-X SFP interface status LEDs description

Status		Meaning
Interface mode LED	**SFP interface status LED**	
Steady green (rate mode)	Off	No link is present on the interface.
	Steady green	The interface operates at the rate of 1000 Mbps; the LED fast flashes when data is being sent and/or received on the interface.
	Steady yellow	The interface operates at the rate of 100 Mbps; the LED fast flashes when data is being sent and/or received on the interface.

Status		Meaning
Interface mode LED	SFP interface status LED	
	Flashing yellow (3 Hz)	POST failed on the interface.
Steady yellow (duplex mode)	Off	No link is present on the interface.
	Steady green	The interface operates in full duplex mode; the LED fast flashes when data is being sent and/or received on the interface.
	Flashing yellow (3 Hz)	POST failed on the interface.

SFP+ Interface Status LED

The port mode LED and the SFP+ status LED together indicate the SFP+ interface operation status, as shown in Table 1-16.

Table 1-16 SFP+ status LEDs description

Status		Meaning
Port mode LED	Ethernet port status LED	
Steady green (rate mode)	Steady green	The port operates at the rate of 10 Gbps; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	No link is present on the port.
Steady yellow (duplex mode)	Steady green	The port operates in full-duplex mode; the LED is fast flashing when data is being sent and/or received on the port.
	Flashing yellow (3 Hz)	POST failed on the port.
	Off	No link is present on the port.

Management Ethernet Port Status LED

Table 1-17 The S5810 management Ethernet port status LED description

Mark	Status	Description
LINK	Off	The management Ethernet port is not connected.
	Steady green	The management Ethernet port operates at a rate of 10/100/1000 Mbps.
ACT	Off	The management Ethernet port is not receiving or sending data.
	Flashing yellow	The management Ethernet port is receiving or sending data.

Hot Swappable Power Modules

The S5810 series provides two power module slots. A power module is shipped with the switch.

- A PSR300-12A AC power module is shipped with the S5810-50S
- A PSR300-12D1 DC power module is shipped with the S5810-50S-DC

The switch only requires one power module to ensure the normal operation of the whole system. You can also select two power modules to implement 1+1 power module redundancy and load sharing.

When implementing 1+1 power module redundancy, you can hot plug a power module. To prevent damage to the device and personal injury, follow the installation and removal procedures illustrated in Figure 1-8 and Figure 1-9, respectively.

Figure 1-8 Installation procedure

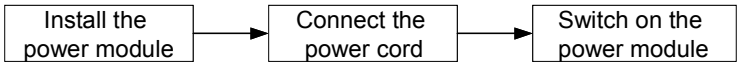
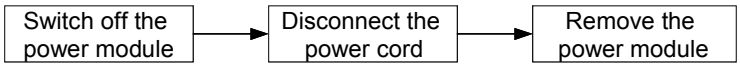


Figure 1-9 Removal procedure



AC Power Module

The S5810 series uses PSR300-12A as the AC power module. The specifications of PSR300-12A are illustrated in Table 1-18.

Table 1-18 PSR300-12A specifications

Item	Specifications
Rated voltage range	100 VAC to 240 VAC; 50/60 Hz
Max voltage range	90 VAC to 264 VAC; 47/63 Hz
Output voltage	12 V
Max output current	25 A
Max output power	300 W

DC Power Module

The S5810 series uses the PSR300-12D1 as the DC power module. The specifications of PSR300-12D1 are illustrated in Table 1-19.

Table 1-19 PSR300-12D1 specifications

Item	Specifications
Rated voltage range	–48 VDC to –60 VDC
Max voltage range	–40.5 VDC to –72 VDC
Output voltage	12 V
Max output current	25 A

Item	Specifications
Max output power	300 W

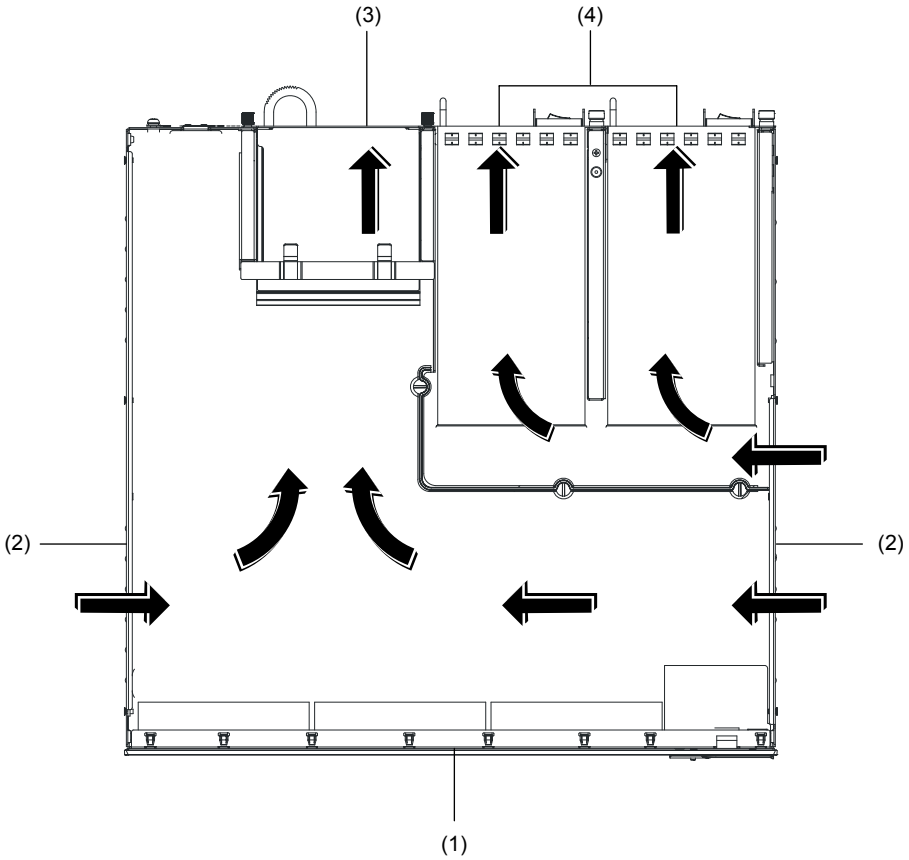
See *H3C PSR300-12A & PSR300-12D1 Power Module User Manual* for the detailed description of the power modules.

Ventilation System

The ventilation system of the S5810 series consists of the air vents at both sides of the chassis, the turbo fan, and the power module fans. With the ventilation system, the heat generated from the chassis and the power modules can be dissipated in time to ensure the system stability. When installing the S5810 series, select a proper location according to the ventilation design of your installation environment.

The ventilation process of the S5810 series is shown in Figure 1-10. Air goes in from the air vents at both sides of the chassis, takes the heat generated from the chassis and the power modules, and then goes out from the exhaust vents of the turbo fan and power modules. The chassis and power modules use separate air channels for heat dissipation. Make sure that both air channels are free of obstruction.

Figure 1-10 Ventilation process of the S5810 series



(1) Front panel	(2) Air vents at both side of the chassis
(3) Air exhaust vent of the turbo fan	(4) Air exhaust vents of the power modules

The turbo fan model supported by the S5810 series is LSWM1BFAN. The specifications of LSWM1BFAN are illustrated in Table 1-20.

Table 1-20 LSWM1BFAN specifications

Specification	Description
Fan number	1
Fan speed	5000 R.P.M
Max airflow	41.65 CFM
Input voltage	12 V
Power consumption	24 W
Acoustics	Normal speed: 48.4 dB-A Max speed: 59.7 dB-A
Operating temperature	–10°C to +60°C (14°F to 140°F)
Relative humidity (noncondensing)	5% to 90%
Storage temperature	–40°C to +75°C (-40°F to +167°F)
Storage relative humidity (noncondensing)	5% to 95%

You can judge whether the fan works normally by checking the system status LED and the seven-segment LED (for details, refer to Table 1-12). If a failure occurs, replace the turbo fan in time (for how to replace a turbo fan, refer to Installing a Fan Tray). For detailed information about fan trays, refer to *H3C LSWM1FAN & LSWM1BFAN Installation Manual*.

2 Installation Preparations

Safety Precautions

To avoid any device impairment and bodily injury caused by improper use, observe these rules:

- Before cleaning the switch, plug out the power cord of the power module of the switch first. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp environment. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be damaged severely in case of a fall.
- Ensure proper ventilation of the equipment room and keep the ventilation vents of the switch free of obstruction.
- Connect the yellow-green protection grounding cable before power-on.
- Make sure that the operating voltage is in the range labeled on the power module of the switch.
- Do not open the chassis to avoid electrical shocks when the switch is operating or just when the switch is powered off.
- When replacing interface cards, hot-swappable power modules and fan trays, wear an ESD-preventive strap to avoid damaging the units.

Installation Site

The S5810 series must be used indoors. You can mount the switch in a rack or on a workbench, but make sure:

- Adequate clearance is reserved at the air inlet/exhaust vents for ventilation.
- The rack or workbench has a good ventilation system.
- The rack is sturdy enough to support the device and its accessories.
- The rack or workbench is well earthed.

To ensure normal operation and long service life of your switch, install it in an environment that meets the requirements described in the following subsections.

Temperature/Humidity

You must maintain a proper temperature and humidity in the equipment room. Long-term high humidity may lead to bad insulation, electricity leakage, mechanical property changes, and metal corrosion. However, if the relative humidity is too low, captive screws may become loose as the result of contraction of insulation washers and static electricity may be produced in a dry environment to jeopardize the circuits on the device. A high temperature is the most undesirable condition, because it accelerates the aging of insulation materials and thus significantly lowers reliability and service life of the switch.

For the temperature and humidity requirements of different models, refer to Table 2-1 on page 2-2.

Cleanness

Dust is a hazard to the operating safety of your device. The dust accumulated on the chassis can be adsorbed by static electricity and result in poor contact of metal connectors or metal contact points. Especially when the indoor relative humidity is low, electrostatic adsorption is more likely to happen. This can not only shorten the service life of your device but also cause communications failures. The following table lists the dust concentration limit.

Table 2-1 Dust concentration limit in the equipment room

Substance	Concentration limit (particles//m³)
Dust	≤ 3 x 10^4 (no visible dust on the tabletop over three days)
Note: The dust diameter is greater than or equal to 5 μm.	

Besides dust, there are rigorous limits on the content of harmful substances in the air that can accelerate the corrosion and aging of metals, such as chloride, acid, and sulfide in the equipment room. The equipment room must be protected against ingression of harmful gases such as SO_2, H_2S, NH_3, and Cl_2. For specific requirements, see the following table.

Table 2-2 Harmful gas limits in the equipment room

Gas	Maximum concentration (mg/m^3)
SO_2	0.2
H_2S	0.006
NH_3	0.05
Cl_2	0.01

Electromagnetic Susceptibility

The operation of your switch can be affected by external interferences, such as conducted emission by capacitance coupling, inductance coupling, electromagnetic wave radiation, and common impedance (including the grounding system) coupling, and leads (power cables, signaling cables and output wires). To eliminate the interferences, pay attention to the following:

- As the AC power system is a TN system, use a single-phase three-wire power socket with a protection earth (PE) to effectively filter interference from the power grid.
- Keep the device far away from radio transmitting stations, radar stations, and high-frequency devices.
- Use electromagnetic shielding, for example, shielded interface cables, when necessary.
- Route interface cables only indoors to prevent signal ports from getting damaged by over-voltage or over-current caused by lightning strikes.

Laser Safety

The S5810 series are Class 1 laser devices.

Caution

When an optional interface module or SFP/SFP+ module on the S5810 series is operating, do not stare into the optical port because the laser light emitted from the optical fiber may hurt your eyes.

Installation Tools

- Flat-blade screwdriver
- Phillips screwdriver
- ESD-preventive wrist strap

Caution

The installation tools are not shipped with the S5810 series.

3 Installing a Switch

Caution

On a mounting screw of the chassis of the H3C series switches, there is a seal labeled with H3C. You need to keep it intact before asking the agent to maintain the switch. You need to get the permission of the local agent before you can open the chassis. Otherwise, you will be responsible for irreversible damages caused by your operations.

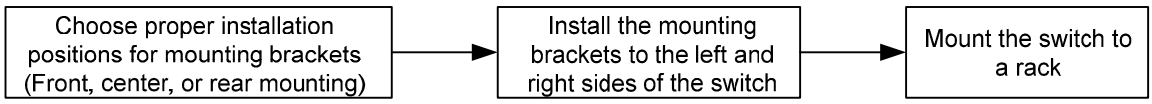
Note

The switches in the installation procedures of this chapter are only for illustration sake. For real appearance of the switch, refer to the actual product.

Installing the Switch into a 19-Inch Rack Using Mounting Brackets

The S5810 series switches can be installed into a 19-inch rack with load-bearing mounting brackets. Figure 3-1 show how to install an S5810 switch into a 19-inch rack.

Figure 3-1 Install an S5810 into a 19-inch rack



Introduction to Mounting Brackets

The S5810 series switches provides a pair of 1U mounting brackets as shown in Figure 3-2.

Figure 3-2 Mounting brackets of an S5810



Attaching the Mounting Brackets to a Switch

The mounting brackets can be attached to a switch for center, front, or rear mounting. You can choose a proper position according to the actual requirements.

1) Fix the left and right mounting brackets respectively to the left and right sides of the chassis. Figure 3-3, Figure 3-4, and Figure 3-5 show how to install the brackets for front mounting, center mounting, and rear mounting (because the installation procedures of the two brackets are the same, each figure shows only how to install one bracket).
2) Fasten the M4x8 screws.

Figure 3-3 Attach the mounting bracket to an S5810 for front mounting

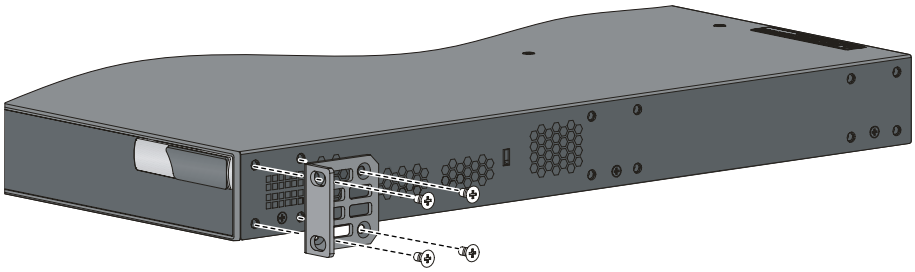


Figure 3-4 Attach the mounting bracket to an S5810 for center mounting

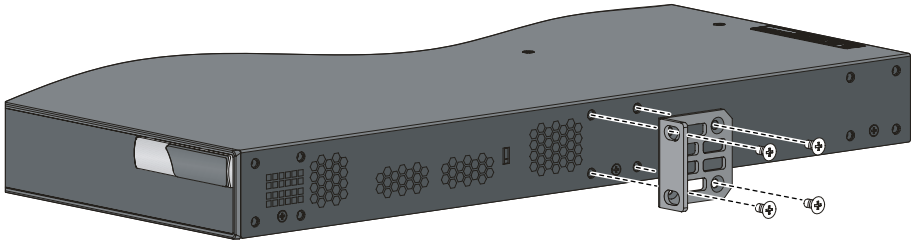
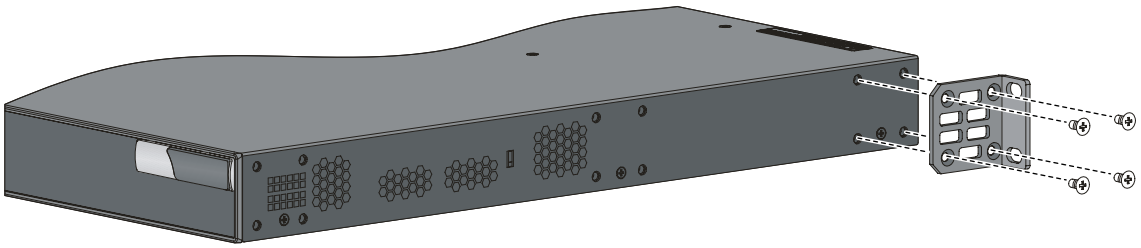


Figure 3-5 Attach the mounting bracket to an S5810 for rear mounting



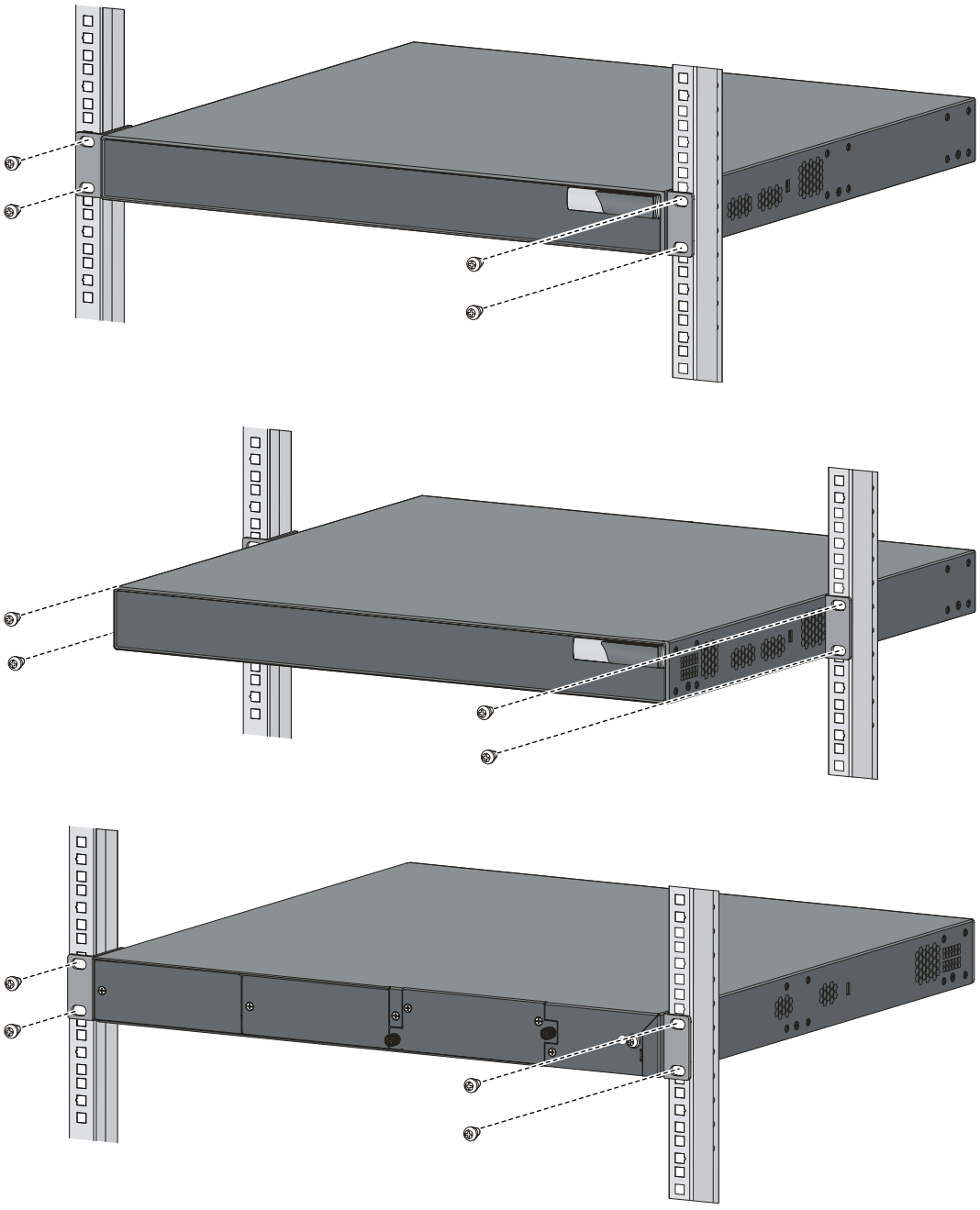
Mounting the Switch to a Rack

1) Wear an ESD-preventive wrist strap and make sure the rack is well grounded and is firm enough to hold the switch and cables.
2) Attach the mounting brackets to the switch. For details, refer to Attaching the Mounting Brackets to a Switch.
3) Hold the bottom of the switch and gently place the switch on the rack to a proper location with one person.
4) Fix the mounting brackets with screws (anti-rust screws prepared by yourself) with another person to install the switch to the rack horizontally.

Caution

If support trays are provided on the rack, you can mount the switch to the rack with mounting brackets and trays. Put the switch on the support tray and slide the switch to an appropriate place. Then fix the mounting brackets.

Figure 3-6 Mount the S5810 to a rack



Mounting the Switch on a Workbench

In many cases, standard 19-inch cabinets are not available. Therefore, switches are often placed on clean workbenches. To place the switch on a workbench, follow these steps:

Step1 Place the switch with bottom up carefully, and then clean the round holes on the chassis bottom with dry cloth.

Step2 Attach the rubber feet to the four round holes on the chassis bottom.

Step3 Place the switch with upside up on the workbench.

During the operation, you simply need to:

- Make sure that the workbench is flat and sturdy.
- Ensure good ventilation and a space of 10 cm (3.9 in.) around the chassis for heat dissipation.
- Avoid heavy objects on the switch.

Connecting the Ground Wire

Caution

- Correctly connecting the switch ground wire is crucial to the lightning protection and electromagnetic susceptibility (EMS) of a switch.
- The power and grounding terminals in this section are for illustration only.

The power input end of the switch is connected with a noise filter, whose central ground is directly connected to the chassis, forming the so-called chassis ground (commonly known as PGND). This chassis ground must be securely connected to the earth so that the faradism and leakage electricity can be safely released to the earth, enhancing the EMS capability of the switch.

When a Grounding Strip is Available

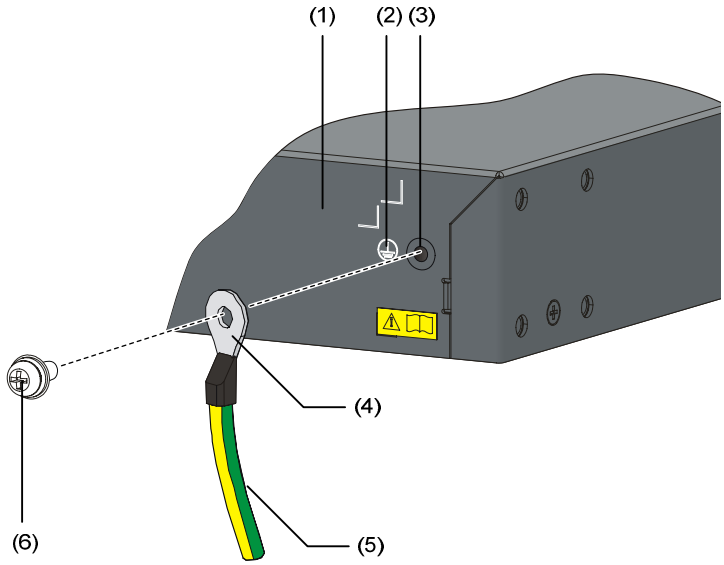
When a grounding strip is available at the installation site, attach one end of the yellow-green ground wire of the switch to the grounding screw on the grounding strip (the grounding screw and the grounding hole are on the rear panel of the switch and are marked with a grounding sign). To do this, follow these steps:

Step1 Remove the grounding screw from the rear panel of the switch chassis.

Step2 Put the supplied OT terminal of the PGND cable on the grounding screw.

Step3 Fasten the grounding screw, which is attached with the OT terminal of the PGND cable, into the grounding screw hole with a screwdriver.

Figure 3-7 Connect the PGND cable to the grounding hole of switch



(1) Rear panel of the switch	(2) Grounding sign
(3) Grounding hole	(4) OT terminal
(5) PGND cable	(6) Grounding screw

To attach the other end of the PGND cable to the grounding strip in the equipment room, follow these steps:

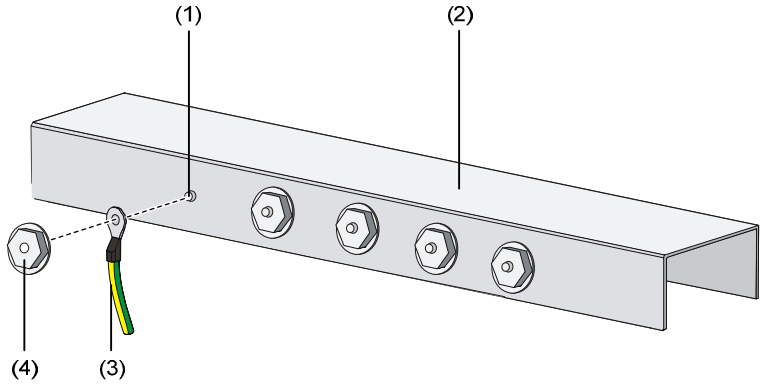
Step1 Cut the PGND cable to a proper length according to the distance between the switch and the grounding strip.

Step2 Peel 5 mm (0.20 in.) of insulation sheath using a wire stripper, and then insert the naked metal part through the black insulation covering into the end of the OT terminal. (Two OT terminals are provided with the PGND cable when shipped with the switch; select a proper OT terminal according to the size of the grounding post.)

Step3 Secure the metal part of the cable to the OT terminal with a crimper, and then cover it with the insulation covering. Then heat the insulation covering with a blowing machine to let it completely cover the metal part.

Step4 Connect the OT terminal to the grounding pole of the grounding strip, and then fasten it with a hex nut.

Figure 3-8 Connect the ground wire to the grounding strip



(1) Grounding post	(2) Grounding strip
(3) PGND cable	(4) Hex nut

Caution

The fire main and lightning rod of a building are not suitable for grounding the switch. The ground wire of the switch should be connected to the grounding device for the equipment room.

Where a Grounding Conductor Can be Buried

When there is no grounding strip, but an area with exposed earth is available nearby where a grounding conductor can be buried, hammer a 0.5 m (1.64 ft.) or longer angle iron or steel tube into the earth. The angle iron should have a dimension no less than 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in.) and the steel tube should have a wall thickness no less than 3.5 mm (0.14 in.) and be zinc-coated. Weld the yellow-green ground wire to the angel iron or steel tube and treat the joint for corrosion protection.

Figure 3-9 Ground the switch by burying the grounding conductor into the earth



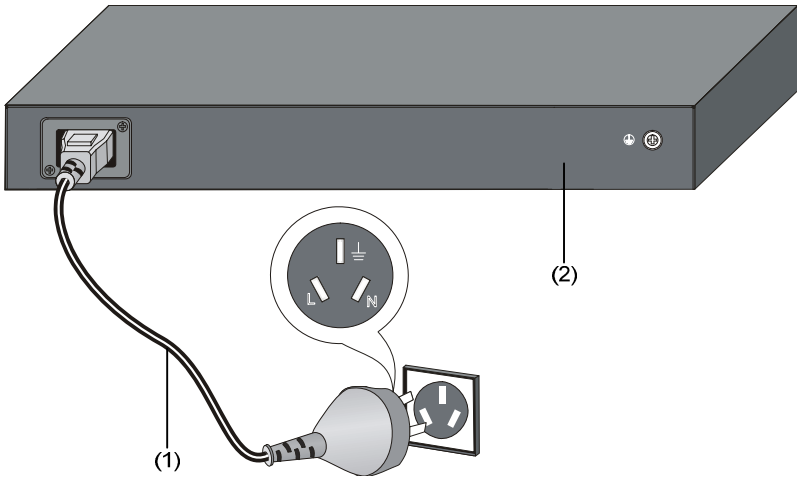
(1) Grounding screw	(2) PGND cable	(3) Earth
(4) Joint	(5) Grounding conductor	(6) Switch rear panel

In Other Installation Sites

When the switch is AC-powered

For an AC-powered switch, if neither of the above-mentioned two conditions is available, ground the switch through the PE wire of the AC power supply. Make sure the PE wire is well connected to the ground at the power distribution room or AC transformer side, the switch PE terminal and the PE wire are well connected, and the three-wire input cable of the PGND cable is used for the power supply cable. If the PE wire of the AC power supply is not grounded at the power distribution room or AC transformer side, report the problem and make reconstructions.

Figure 3-10 Ground through an AC power PE wire

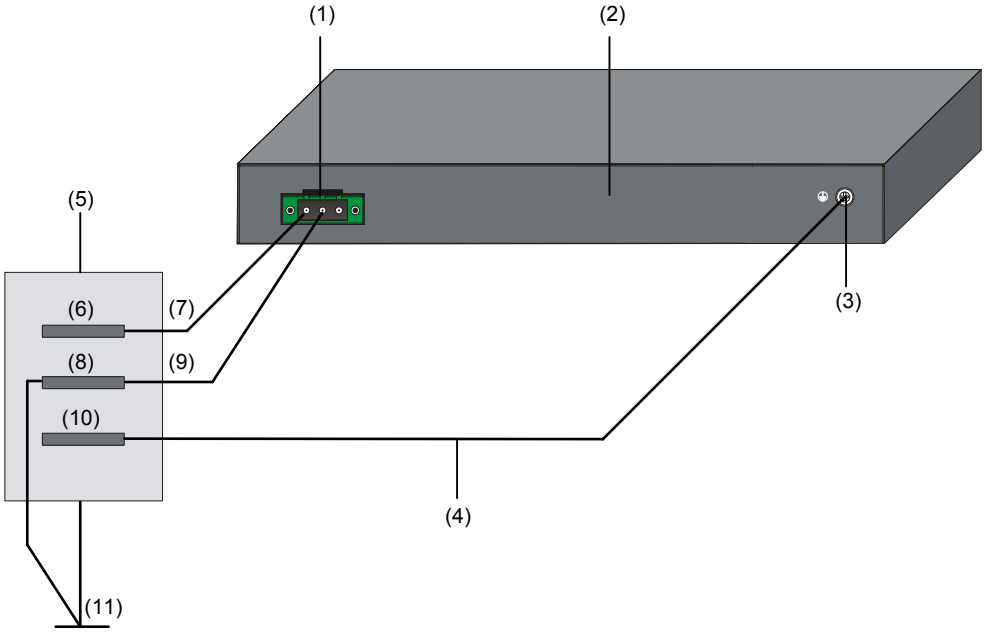


(1) Three-wire AC power input cable	(2) Switch rear panel

When the Switch is DC-powered

For a DC-powered switch, if neither of the first two conditions mentioned above is available, ground the switch through the return wire (RTN) of the DC power supply. In this case, make sure this RTN wire is well connected to the ground at the DC output of the DC power cabinet.

Figure 3-11 Ground through the PGND of a power cabinet



(1) DC power input	(2) Switch rear panel	(3) Grounding screw	(4) PGND cable
(5) AC/DC power cabinet	(6) –48V strip	(7) –48V	(8) RTN strip
(9) RTN	(10) PGND strip	(11) Grounding	

Note

Use the PGND cable provided with the switch to connect the grounding strip in the equipment room. Otherwise, the grounding effect may not be ensured, which easily causes damage to the switch.

Installing a Power Module

The S5810 series provides two power module slots on its rear panel. Hot swappable power module slot 1 is empty when the switch is shipped, and hot swappable power module 2 is installed with a filler panel. You can select one or two power modules for your switch as needed. For details about optional power modules, refer to Hot Swappable Power Modules on page 1-14.

The installation and removal procedure includes the installation and removal of power modules and power cords. To prevent damage to the device and personal injury, follow the installation and removal procedures illustrated in Figure 3-12 and Figure 3-13, respectively.

Figure 3-12 Installation procedure

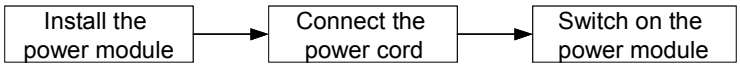
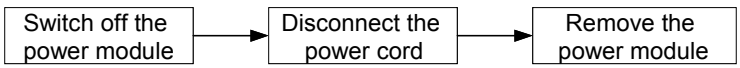


Figure 3-13 Removal procedure



Installing the Power Module

Step1 Wear an ESD-preventive wrist strap, ensure a good skin contact and make sure that the ESD-preventive wrist strap is properly grounded.

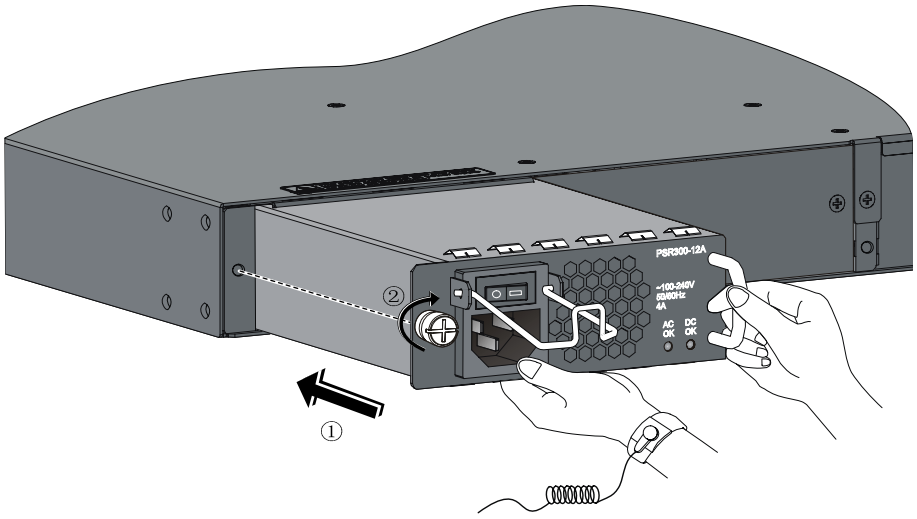
Step2 Take the power module from the package and check that the power module model is as required.

Step3 Face the slot into which the power module is to be inserted.

Step4 Insert the power module with the upside up. Grasp the handle of the module with one hand and hold the module bottom with the other, and then slide the module slowly along the guide rails into the slot (see callout 1 in Figure 3-14).

Step5 Fasten the captive screw on the power module clockwise with a Philips screwdriver until the power module is fixed into the chassis (see callout 2 in Figure 3-14).

Figure 3-14 Install other power module models to the switch



Caution

- To prevent damage to the power module or the connector on the backplane of the powered device, insert the power module gently. If you encounter a hard resistance while inserting the power module, pull out the power module and then insert it again.
- If the captive screw cannot be tightly fixed, check the installation of the power module.

Removing the Power Module

To remove the power module, follow these steps:

Step1 Wear an ESD-preventive wrist strap, ensure a good skin contact and make sure that the ESD-preventive wrist strap is properly grounded.

Step2 Switch off the power module and disconnect the power cord.

Step3 Face the power module to be removed from the powered device.

Step4 Loosen the captive screw of the power module anti-clockwise with a Philips screwdriver until the captive screw falls off the powered device.

Step5 Grasp the handle of the module with one hand and pull it out a little, hold the module bottom with the other hand, and then pull the module slowly along the guide rails out of the slot.

Note

Put the power module into an antistatic bag after removal.

Connecting the Power Cord

Connecting an AC Power Cord

Step1 Switch off the AC power module.

Step2 Pull the bail latch upwards (see Figure 3-15).

Step3 Connect one end of the AC power cord to the AC receptacle on the power module (see callout 1 in Figure 3-16).

Step4 Pull the bail latch down to secure the plug to the AC receptacle (see callout 2 in Figure 3-16).

Step5 Connect the other end of the AC power cord to the external AC power supply system.

Figure 3-15 Connect an AC power cord I

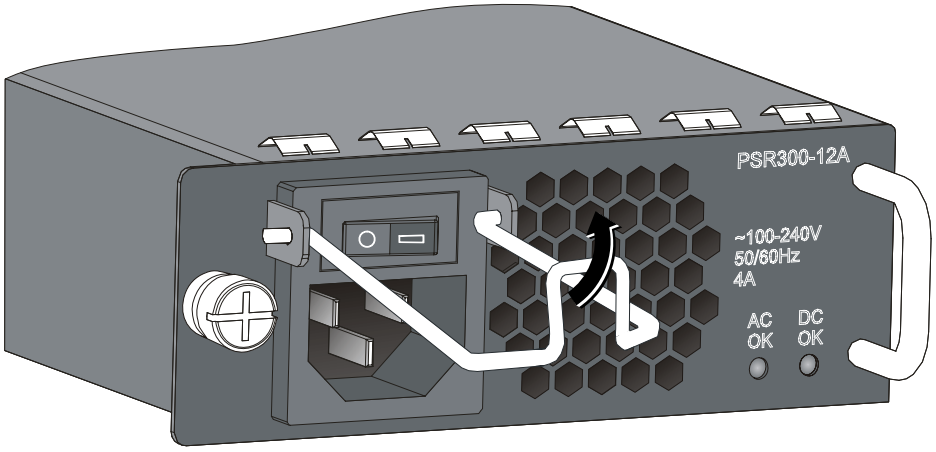
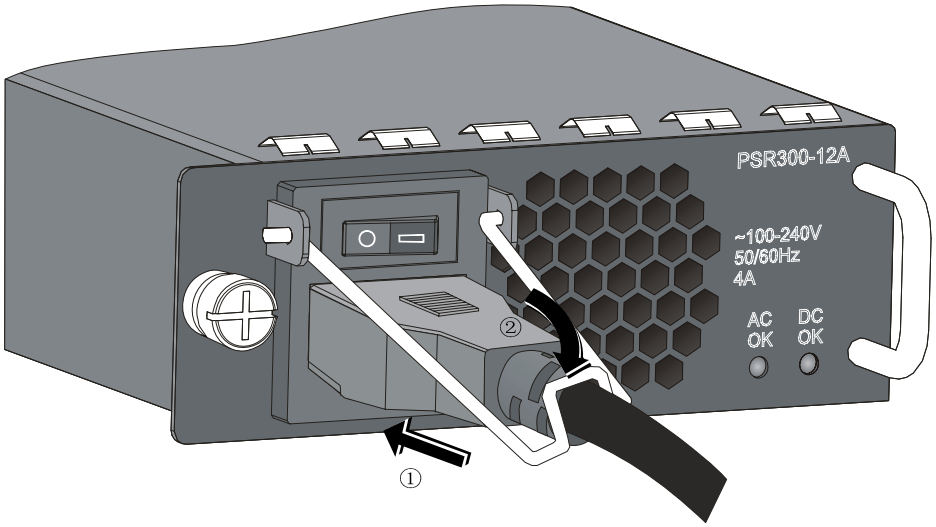


Figure 3-16 Connect an AC power cord II



Connecting a DC Power Cord

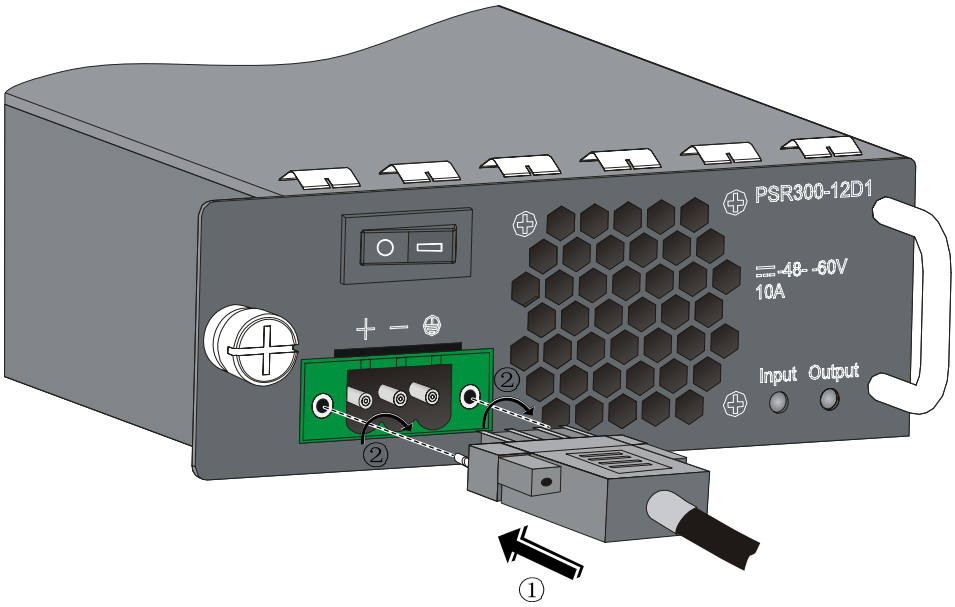
Step1 Switch off the DC power module.

Step2 Keep the upside of the DC plug shipped with the device on top and plug it in the DC receptacle (see callout 1 in Figure 3-17). (If you plug it with the upside down, the insertion is not smooth because of the specific structure design of the DC receptacle and the plug.)

Step3 Use a flat-blade screwdriver to fix the two screws on the DC plug clockwise to secure the plug to the DC receptacle (see callout 2 in Figure 3-17).

Step4 Connect the other end of the DC power cord to the external –48 VDC equipment-room power supply system.

Figure 3-17 Connect a DC power cord



Caution

Pay attention to the positive (+) and negative (-) marks on the power cord to avoid connection mistakes.

Verifying the Installation

Before powering on the switch, check that:

- There is enough space for heat dissipation around the switch, and the rack or workbench is stable.
- The ground wire is connected.
- The selected power module matches that required by the switch.
- The power cables are properly connected.
- All the interface cables are cabled indoors. If there is any cable wired outdoors, verify that socket strip with lightning protection and lightning arresters for network ports have been properly connected.

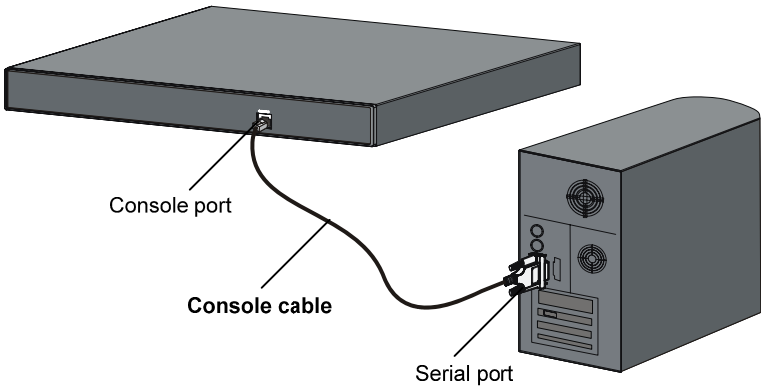
4 Initial Power-On

Setting Up the Configuration Environment

Set up the configuration environment as follows:

Connect a terminal (a PC in this example) to the console port on the switch with a console cable.

Figure 4-1 Network diagram for configuration environment setup



Connecting the Console Cable

Console Cable

A console cable is an 8-core shielded cable. One end of the cable is a crimped RJ-45 connector, which is connected to the console port of the switch, and the other end is a DB-9 female connector, which is connected to the serial port on the console terminal, as shown below.

Figure 4-2 Console cable

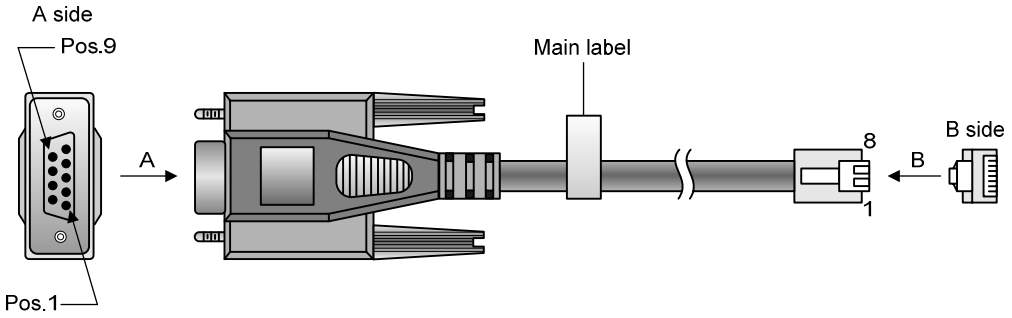


Table 4-1 Console cable pinouts

RJ-45	Signal	Direction	DB-9
1	RTS	←	7
2	DTR	←	4

RJ-45	Signal	Direction	DB-9
3	TXD	←	3
4	CD	→	1
5	GND	--	5
6	RXD	→	2
7	DSR	→	6
8	CTS	→	8

Connection Procedure

When you want to use the terminal to configure the switch, follow these steps to connect a terminal device to the switch using the console cable:

1) Plug the DB-9 female connector of the console cable to the serial port of the console terminal or PC.
2) Connect the RJ-45 connector of the console cable to the console port of the switch.

Caution

Pay attention to the mark on the console port and be sure to plug the connector to the correct port.

Note

- When connecting a PC to a powered-on switch, you are recommended to connect the DB-9 connector of the console cable to the PC before connecting the RJ-45 connector to the switch.
- When disconnecting a PC from a powered-on switch, you are recommended to disconnect the DB-9 connector of the console cable from the PC after disconnecting the RJ-45 connector from the switch.

Setting Terminal Parameters

When setting up the configuration environment through the console port, the terminal or PC can use the terminal emulation program to communicate with the switch. You can run the HyperTerminal of the Windows operating system to connect to other PCs, network devices, and Telnet sites. For detailed information and the use of the HyperTerminal, refer to the HyperTerminal Help documentation in Help and Support Center on the PC running the Windows operating system.

In the following configuration procedure, Windows XP HyperTerminal is used to communicate with the switch.

1) Start the PC and run the terminal emulation program.
2) Set terminal parameters as follows:

- Bits per second: 9,600

- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None
- Emulation: VT100

The specific procedure is as follows:

Step1 Select **Start** > **Programs** > **Accessories** > **Communications** > **HyperTerminal** to enter the HyperTerminal window. The **Connection Description** dialog box appears, as shown below.

Figure 4-3 Connection description of the HyperTerminal



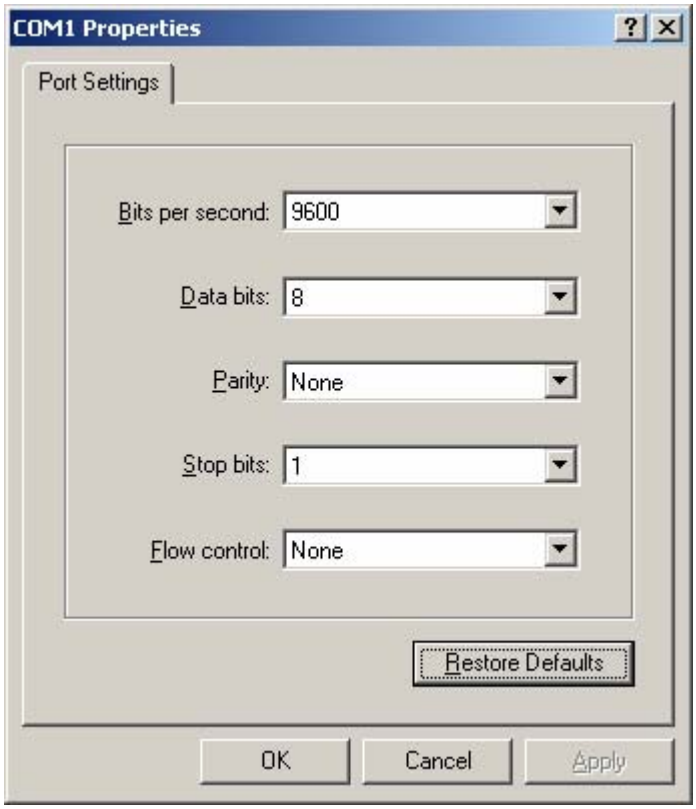
Step2 Type the name of the new connection in the **Name** text box and click **OK**. The following dialog box appears. Select the serial port to be used from the **Connect using** drop-down list.

Figure 4-4 Set the serial port used by the HyperTerminal connection



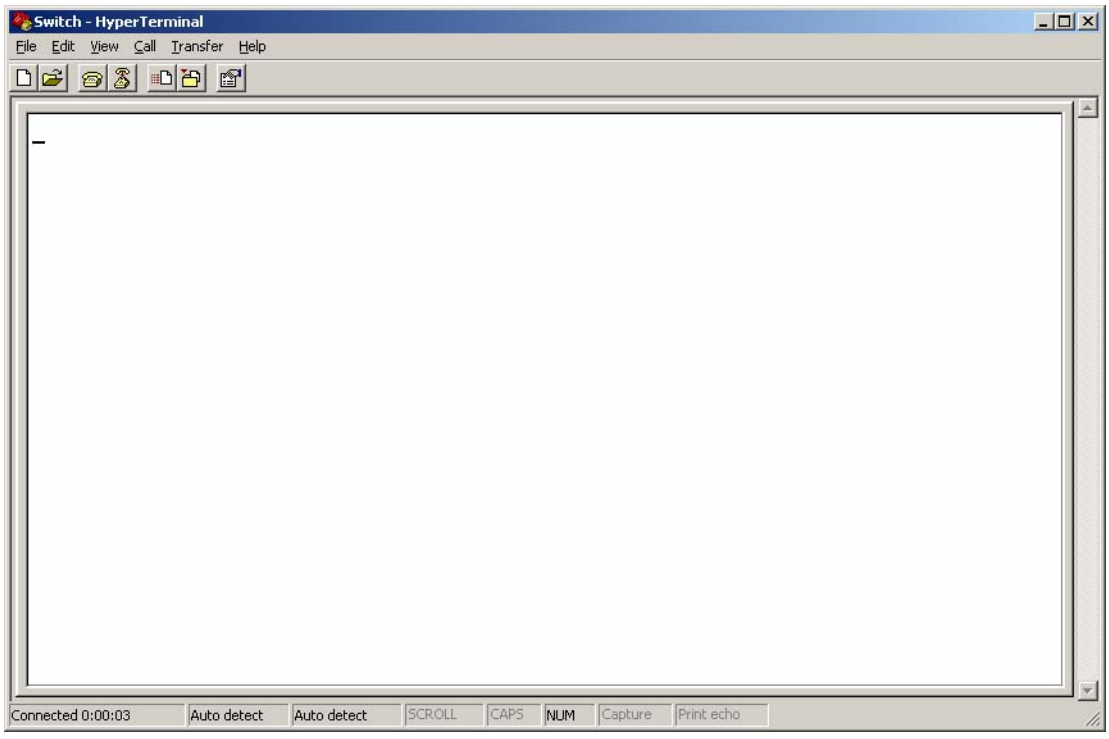
Step3 Click **OK** after selecting a serial port. The following dialog box appears. Set **Bits per second** to **9600**, **Data bits** to **8**, **Parity** to **None**, **Stop bits** to **1**, and **Flow control** to **None**.

Figure 4-5 Set the serial port parameters



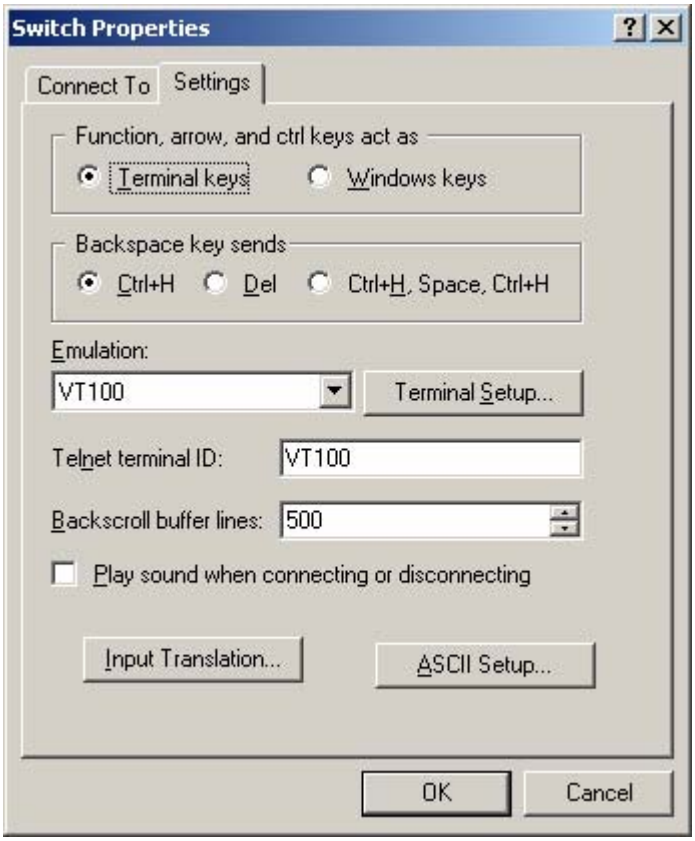
Step4 Click **OK** after setting the serial port parameters and the system enters the HyperTerminal window shown below.

Figure 4-6 HyperTerminal window



Step5 Click **Properties** in the HyperTerminal window to enter the **Switch Properties** dialog box. Click the **Settings** tab, set the emulation to **VT100**, and then click **OK**.

Figure 4-7 Set terminal emulation in **Switch Properties** dialog box



Booting the Switch

Checking Before Power-On

Before powering on the switch, verify that:

- The power cable is properly connected.
- The power supply voltage meets the requirement of the switch.
- The console cable is properly connected; the terminal or PC used for configuration has been started; and the configuration parameters have been set.

Powering On the Switch

The S5810 series have the same Boot ROM display style. This document uses the Boot ROM output information on the S5810-50S as an example:

```
Starting......

    ******************************************************************************
    *                                                                            *
    *                 H3C S5810-50S BOOTROM, Version 103                         *
    *                                                                            *
    ******************************************************************************
    Copyright (c) 2004-2008 Hangzhou H3C Technologies Co., Ltd.
```

```
    Creation Date   : Dec 15 2008,14:19:14
    CPU Clock Speed : 750MHz
    Memory Size     : 512MB
    Flash Size      : 256MB
    CPLD Version    : 000
    PCB Version     : Ver.A
    Mac Address     : 00E0FC005810

Press Ctrl-B to enter Extended Boot menu...1
```

The last line asks whether you want to enter the Boot ROM menu. The system waits one second for your response.

Note

- The system has two startup modes: normal startup and fast startup. The normal startup mode requires a little longer time than the fast startup mode because of more self-test operations.
- By default, the system starts up in fast mode and the waiting time here is one second. If you set the startup mode to normal, the waiting time is five second. The following section describes the setting of the startup mode.

- If you press **Ctrl** + **B** within one second, the Boot ROM menu is displayed.

```
BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current configuration file
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Table 4-2 describes the fields above.

Table 4-2 Description on the fields

Item	Description
1. Download application file to flash	Download the application file to the flash memory
2. Select application file to boot	Select the application file to boot
3. Display all files in flash	Display all files in the flash memory
4. Delete file from flash	Delete files from the flash memory

Item	Description
5. Modify BootRom password	Modify the Boot ROM password
6. Enter BootRom upgrade menu	Enter the Boot ROM update menu
7. Skip current configuration file	Skip the current configuration file (this configuration is valid once)
8. Set BootRom password recovery	Restore the Boot ROM password
9. Set switch startup mode	Set the startup mode of the switch
0. Reboot	Restart the switch

- If you perform no operation or press a key other than **Ctrl** + **B** within one second, once the remaining waiting time becomes zero, the system begins to automatically start up and the following information is displayed:

```
Starting to get the main application file--flash:/S5810_RELEASE.bin!..........
..................................................
The main application file is self-decompressing.............................
...............................................................................
.....................................Done!
System is starting...

Board checking.................................LSW158150S
Switch chip selftest.................................OK!
SDRAM fast selftest..............................NOT TEST!
Flash fast selftest..................................OK!
PHY selftest.........................................OK!
CPLD selftest........................................OK!
Please check port leds..........................finished!

The switch Mac is: 00E0-FC00-5810

User interface aux0 is available.

Press ENTER to get started.
```

The appearance of "Press ENTER to get started" indicates that the automatic startup of the switch is complete.

Press **Enter**. The following prompt is displayed:

```
<H3C>
```

You can configure the switch now.

Changing the Boot Mode

By default, the system starts up in fast boot mode. If you want to change the boot mode to **normal**, press **Ctrl** + **B** within one second to enter the Boot ROM menu showed below:

```
   BOOT  MENU

1. Download application file to flash
```

```
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current configuration file
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Enter **9**. The system prompts you to change the startup mode:

```
The current mode is fast startup mode!
Are you sure you want to change it to full startup mode? Yes or No (Y/N):
```

Enter **Y**. The system displays the following information:

```
Setting...Done!

   BOOT MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current system configuration
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Enter **0**. The system reboots in fast startup mode and displays the following information:

```
Starting......

    ****************************************************************************
    *                                                                          *
    *                 H3C S5810-50S BOOTROM, Version 107                       *
    *                                                                          *
    ****************************************************************************
    Copyright (c) 2004-2009 Hangzhou H3C Technologies Co., Ltd.

    Creation Date   : Feb 19 2009,09:02:02
    CPU Clock Speed : 750MHz
    Memory Size     : 512MB
    Flash Size      : 256MB
    CPLD Version    : 000
```

```
    PCB Version     : Ver.A
    Mac Address     : 00E0FC005810

Press Ctrl-B to enter Extended Boot menu...5
```

In normal startup mode, the waiting time here is five seconds. If you press **Ctrl** + **B** within five seconds, the Boot ROM menu is displayed. If you perform no operation or press a key other than **Ctrl** + **B** within five seconds, the system begins to automatically start up and the following information is displayed:

```
Starting to get the main application file--flash:/s5810 RELEASE.bin!...
............................................................
The main application file is self-decompressing.............................
.....................................................................................
.....................................................................................
.....................................................................................
.....................................................................................
Done!
System is starting...

Board checking.....................................LSW158150S
Switch chip selftest.....................................OK!
SDRAM fast selftest..............................NOT TEST!
Flash fast selftest.....................................OK!
PHY selftest.............................................OK!
CPLD selftest............................................OK!
Please check port leds.............................finished!

User interface aux0 is available.

Press ENTER to get started.
```

The appearance of "Press ENTER to get started" indicates that the automatic startup of the switch is complete.

Press **Enter**. The following prompt is displayed:

```
<H3C>
```

You can configure the switch now.

Note

- To switch to the fast start mode, select **9** from the Boot ROM menu, enter **N** after the prompt information is displayed, and then reboot the system.
- The H3C series switches provide abundant command views. For detailed descriptions about the configuration commands and CLI, refer to *H3C S5810 Series Ethernet Switches Operation Manual* and *H3C S5810 Series Ethernet Switches Command Manual*.

---

5 Loading Software

Introduction

Loading software on the switch involves loading application files and upgrading the Boot ROM program by using the host software package. The host software package of the S5810 series comprises the Boot ROM files and application files with the file name extension **.bin**.

- Loading application files: Download the host software package to the flash memory on the switch and set the attribute (**main**, **backup**, or **none**) of the application files.
- Upgrading the Boot ROM program: Use Boot ROM files in the host software package to upgrade the Boot ROM program of the switch.



Note

Boot ROM files (stored together with application files with name extension **.bin** in the host software package) used for upgrade are complete Boot ROM files. A complete Boot ROM file includes a basic section and an extended section.

- The basic Boot ROM section is the smallest program file used to complete the primary initialization of the system.
- With rich human-computer interaction (HCI) functions, the extended Boot ROM section uses Ethernet interfaces for upgrading the applications and the boot system.

Approaches for Loading Software

You can load application and configuration files of the switch through the Boot ROM menu or the CLI.

Table 5-1 Approaches for loading software on the switch

Approach	Section
Loading files through the Boot ROM menu	Loading Software Using XMODEM Through Console Port
	Loading Software Using TFTP Through Ethernet Port
	Loading Software Using FTP Through Ethernet Port
Loading files through the CLI	Loading Software Through USB Interface
	Loading Software Using FTP
	Loading Software Using TFTP

Note

- Each S5810 series switch provides a management Ethernet port, which can operate regardless of the working status of the switching chip. To upgrade the Boot ROM program or load application files when the switching chip fails to operate normally, you are recommended to use the management Ethernet port.
- Loading the Boot ROM or application files through the management Ethernet port is similar to that through the common Ethernet port. This manual takes the common Ethernet port as examples in file loading.

Loading Software Through the Boot ROM Menu

To load the Boot ROM and application files through the Boot ROM menu, you need to correctly connect a user terminal to the switch using a console cable.

Introduction to the Boot ROM Menu

```
Starting......

    ****************************************************************************
    *                                                                          *
    *                 H3C S5810-50S BOOTROM, Version 103                       *
    *                                                                          *
    ****************************************************************************
    Copyright (c) 2004-2008 Hangzhou H3C Technologies Co., Ltd.

    Creation Date   : Dec 15 2008,14:19:14
    CPU Clock Speed : 750MHz
    Memory Size     : 512MB
    Flash Size      : 256MB
    CPLD Version    : 000
    PCB Version     : Ver.A
    Mac Address     : 00E0FC005810


Press Ctrl-B to enter Extended Boot menu...1
```

When the system displays “Press Ctrl-B to enter Extended Boot menu”, press **Ctrl** + **B**. Then, the following prompt is displayed:

```
Please input BootRom password:
```

Note

- To enter the Boot ROM menu in fast mode, you need to press **Ctrl** + **B** within one second when the system displays “Press Ctrl-B to enter Boot Menu”. Otherwise, the system starts decompressing the application files.
- You need to restart the switch if you want to enter the Boot ROM menu after the application files are decompressed.

Enter the Boot ROM password (the initial password is null). Then the system displays the Boot ROM menu.

```
   BOOT  MENU

1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current configuration file
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

The items in the Boot ROM menu are described in Table 5-2.

Table 5-2 Description of the Boot ROM menu

Item	Description
1. Download application file to flash	Download the application file to the flash memory
2. Select application file to boot	Select the application file to boot
3. Display all files in flash	Display all files in the flash memory
4. Delete file from flash	Delete files from the flash memory
5. Modify BootRom password	Modify the Boot ROM password
6. Enter BootRom upgrade menu	Enter the Boot ROM update menu
7. Skip current configuration file	Skip the current configuration file (this configuration is valid once)
8. Set BootRom password recovery	Restore the Boot ROM password
9. Set switch startup mode	Set the startup mode of the switch
0. Reboot	Restart the switch

Note

- Currently, Boot ROM files are not provided separately by the S5810 series; instead, they are stored together with the application files with name extension **.bin** in the host software package.
- The procedures for upgrading the Boot ROM program and loading application files are similar except that you need to select different items (1 for loading application files, and 6 for loading Boot ROM files) in the Boot ROM menu. This manual takes upgrading the Boot ROM program as examples.

Loading Software Using XMODEM Through Console Port

Introduction to XMODEM

XMODEM is a file transfer protocol widely used for its simplicity. XMODEM transfers files through the console port, supporting data packets of 128 bytes. With respect to reliability, it supports checksum, CRC, and the error packet retransmission mechanism. Normally, the maximum number of retransmission attempts is ten.

XMODEM transfer is completed by receiving and sending programs together. Receiving program initiates packet checking method negotiation by sending the negotiation character. If negotiation passes, the sending program starts packet transfer. Upon receipt of a complete packet, the receiving program checks it using the agreed-upon check method. If the check succeeds, the receiving program sends an acknowledgement character; if the check fails, it sends a reject character. Upon receipt of the acknowledgement, the sending program continues to send the next packet; upon receipt of the reject, it retransmits the packet.

Upgrading the Boot ROM program

Complete the following tasks to update the Boot ROM program using XMODEM through the console port (For details about the HyperTerminal, refer to Setting Terminal Parameters on page 4-2):

Task	Remarks
Enter the Boot ROM update menu on the switch	Required Log in to the switch through the HyperTerminal and then configure the protocol used for loading files.
Enter the protocol parameter setting menu	
Configure the switch to download files using XMODEM	
Set the download rate of the console port on the switch	Required Log in to the switch through the HyperTerminal and then set the download rate of the console port on the switch.
Change the rate of the serial port on the terminal	Optional Set the baud rate of the serial port on the terminal to be consistent with that of the console port on the switch so as to establish a connection between the terminal and the switch using the changed rate.
Upload an application file from the terminal to the switch	Required Transmit a file from the terminal to the switch.

Task	Remarks
Update the Boot ROM file on the switch	Required Update the Boot ROM file on the switch.
Restore the download rate to the default	Optional Set the baud rate of the serial port on the terminal to be consistent with the default rate of the console port on the switch.
Restart the switch to make the updated Boot ROM file effective	Required

1) Enter the Boot ROM update menu on the switch

Enter the Boot ROM menu, and then enter **6** or press **Ctrl** + **U** after the system displays “Enter your choice(0-9):” to enter the Boot ROM update menu.

```
Enter your choice(0-9): 6


1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

The items in the Boot ROM update menu are described in Table 5-3.

Table 5-3 Description of the Boot ROM update menu

Item	Description
1. Update full BootRom	Update the complete Boot ROM file
2. Update extended BootRom	Update the extended Boot ROM section
3. Update basic BootRom	Update the basic Boot ROM section
0. Return to boot menu	Return to the Boot ROM menu

2) Enter the protocol parameter setting menu

After the system displays “Enter your choice(0-3):”, enter **1** to enter the protocol parameter setting menu.

Note

All the Boot ROM files used for upgrade are complete Boot ROM files.

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
```

```
Enter your choice(0-3):
```

The items in the protocol parameter setting menu are described in Table 5-4.

Table 5-4 Description of the protocol parameter setting menu

Item	Description
1. Set TFTP protocol parameter	Set TFTP parameters
2. Set FTP protocol parameter	Set FTP parameters
3. Set XMODEM protocol parameter	Set XMODEM parameters
0. Return to boot menu	Return to the Boot ROM menu

3) Configure the switch to download files using XMODEM

Enter **3** to enter the download rate setting menu.

```
Please select your download baudrate:
1.* 9600
2. 19200
3. 38400
4. 57600
5. 115200
0. Return
Enter your choice (0-5):
```

4) Set the download rate of the console port on the switch

Select an appropriate download rate. For example, if you select 115200 bps, that is, enter **5**, the following information is displayed:

```
Download baudrate is 115200 bps
Please change the terminal's baudrate to 115200 bps and select XMODEM protocol
Press enter key when ready
```

Now that the console communication baud rate of the switch has been changed to 115200 bps while that of the terminal is still 9600 bps, the two sides cannot communicate with each other. According to the prompt, you need to change the baud rate of the terminal to 115200 bps.

Note

- Typically, the size of a .bin file is over 10 MB. Even at a baud rate of 115200 bps, the update takes tens of minutes.
- If you select 9600 bps as the download rate, you can skip the step Change the rate of the serial port on the terminal.

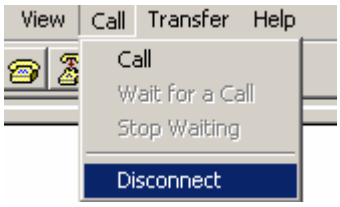
---

5) Change the rate of the serial port on the terminal

To ensure communication between the terminal and the switch, the baud rate of the serial port on the terminal should be consistent with that of the console port on the switch.

Step1 Select **Call** > **Disconnect** in the HyperTerminal window to disconnect the terminal from the switch.

Figure 5-1 Disconnect the terminal from the switch



Step2 Select **File** > **Properties**. In the **Properties** dialog box, click **Configure** (as shown in Figure 5-2), and then select **115200** from the **Bits per second** drop-down list box (as shown in Figure 5-3).

Figure 5-2 Properties dialog box

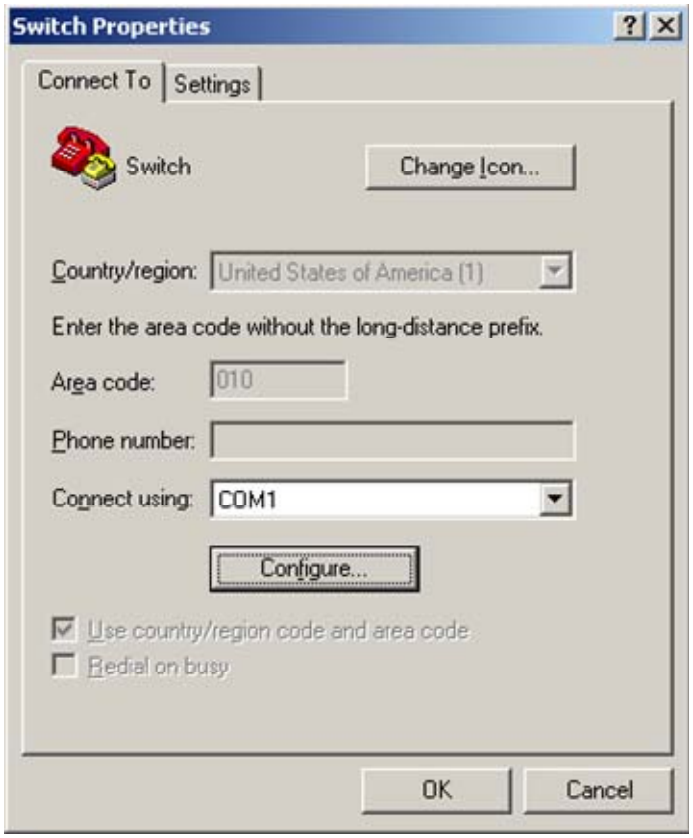
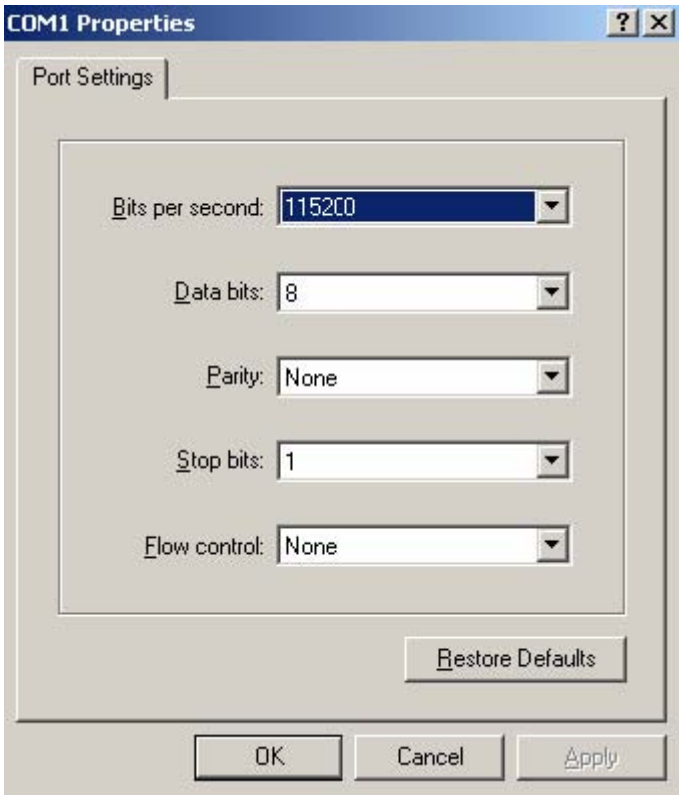
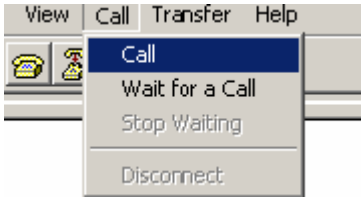


Figure 5-3 Modify the baud rate



Step3 Select **Call** > **Call** to reestablish the connection.

Figure 5-4 Reestablish the connection



Note

The new settings can take effect only after you reestablish the connection.

6) Upload an application file from the terminal to the switch

Step1 After establishing a connection between the terminal and the switch, press **Enter** in the HyperTerminal window to enter the system file downloading state. The following information is displayed:

```
Now please start transfer file with XMODEM protocol.
If you want to exit, Press <Ctrl+X>.
Loading ...CCCCCCCCCC
```

Note

Press **Ctrl** + **X** to quit downloading files; otherwise, proceed as follows.

Step2 Select **Transfer** > **Send File** in the HyperTerminal window (as shown in Figure 5-5). Click **Browse** in the pop-up dialog box (as shown in Figure 5-6) to select the application file to be downloaded (for example, **update.bin**), and select **Xmodem** from the **Protocol** drop-down list.

Figure 5-5 Transfer menu

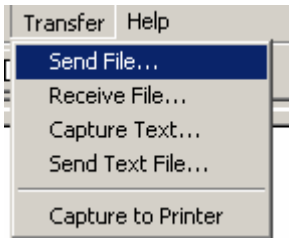
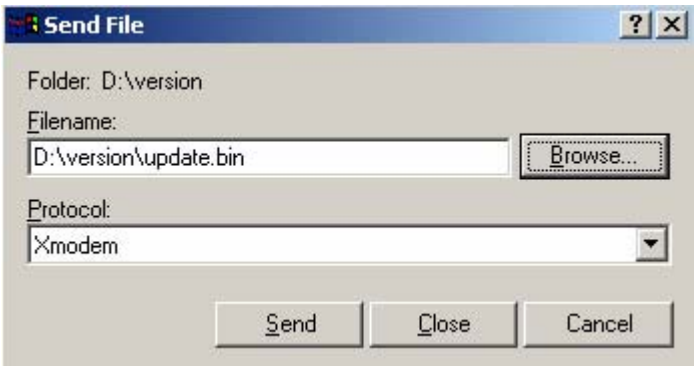
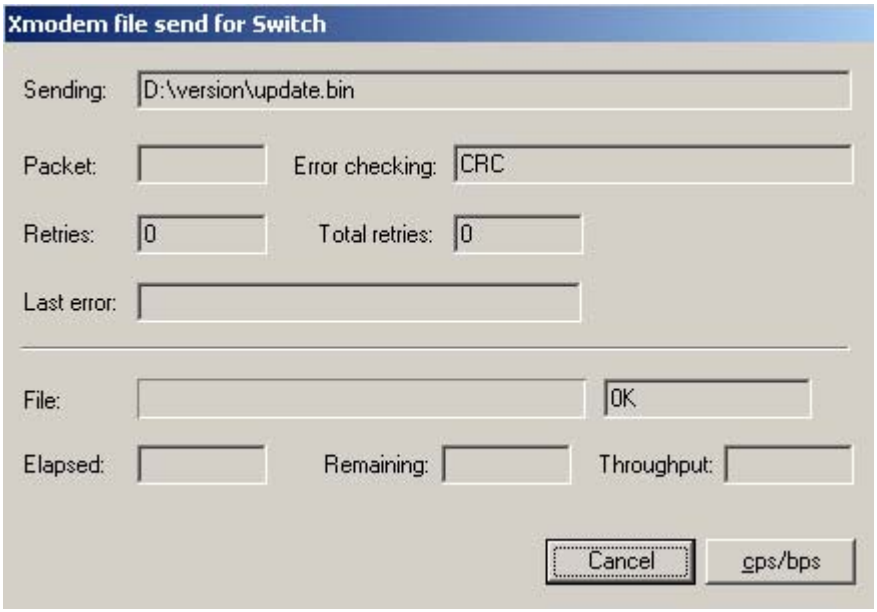


Figure 5-6 File transmission dialog box



Step3 Click **Send**. The following dialog box appears:

Figure 5-7 Send the application file using XMODEM



7) Update the Boot ROM file on the switch

After the Boot ROM file is downloaded, the terminal displays the following information:

```
Loading ...CCCC Done!
```

```
Will you Update Basic BootRom? (Y/N):Y
```

The system asks you whether you want to update the basic Boot ROM section. Click **Y** and then the system displays the following information after the update is completed.

```
Updating Basic BootRom..........Done!
Updating extended BootRom? (Y/N):Y
```

The system asks you whether you want to update the extended Boot ROM section. Click **Y**. Then the system displays the following information after the update is completed:

```
Updating extended BootRom.........Done!
Please change the terminal's baudrate to 9600 bps, press ENTER when ready.
```

8) Restore the download rate to the default

Set the baud rate to 9600 bps (refer to Change the rate of the serial port on the terminal on page 5-6 for detailed operation).

Note

If you select 9600 bps as the download rate, skip this step, that is, you do not need to modify the baud rate of the HyperTerminal.

---

9) Restart the switch to make the updated Boot ROM file effective

Press any key to return to the Boot ROM update menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu
Enter your choice(0-3):
```

Enter **0** to return to the Boot ROM menu, and then enter **0** again. After that, the device is restarted and the updated Boot ROM file becomes effective.

Loading an application file

To load the application file of the switch, enter **1** in the Boot ROM menu. The system displays the following information:

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
Enter your choice(0-3):3
```

Select an appropriate protocol in Table 5-4 to load the application file.

The procedure of loading an application file is similar to that of upgrading the Boot ROM program. The difference lies in that the system displays the prompt of loading the application file rather than the upgrading the Boot ROM program.

After the application file is loaded, the switch displays that you should set the application attribute, that is, **main**, **backup**, or **none**. Type a specific attribute to complete loading the application file.

```
Writing flash.....................................................................
.............Done!
Please input the file attribute (Main/Backup/None) M
Done!
```

Note

If an application file with a specific attribute already exists when you set a new file with the attribute, the attribute of the existing file becomes **none** after the new file becomes effective.

Loading Software Using TFTP Through Ethernet Port

Introductin to TFTP

Trivial File Transfer Protocol (TFTP) is a TCP/IP protocol used for file transfer between client and server. It provides a simple and low-overhead file transfer service. TFTP provides unreliable data transfer over UDP.

Upgrading the Boot ROM program

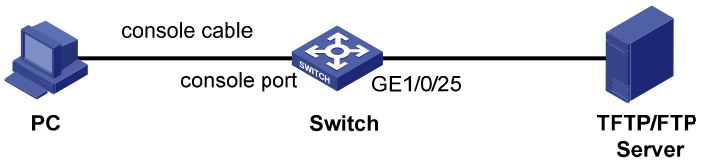
Complete the following tasks to upgrade the Boot ROM program using TFTP through an Ethernet port (For details about the HyperTerminal, refer to Setting Terminal Parameters on page 4-2):

Task	Remarks
Set up the configuration environment	Required Connect the switch to the TFTP server through an Ethernet port, and to a PC through the console port. The PC and the TFTP server can be the same device.
Run the TFTP Server program on the sever	Required
Run the terminal emulation program on the PC connected with the switch's console port. Start the switch and enter the Boot ROM menu. Then enter the protocol parameter setting menu.	Required Log in to the switch through the HyperTerminal and configure the protocol for uploading the Boot ROM file.
Enter the protocol parameter setting menu	
Configure the switch to upload the Boot ROM file through TFTP	
Update the Boot ROM file on the switch	Required Update the Boot ROM file on the switch.
Restart the switch to make the updated Boot ROM file effective	Required Restart the switch to make the updated Boot ROM file effective.

1) Set up the configuration environment

Connect an Ethernet port (GigabitEthernet 1/0/25, for example) of the switch to the server (whose IP address is available) that provides the file (usually the **.bin** file) to be downloaded, and connect the console port of the switch to a PC, as shown in Figure 5-8.

Figure 5-8 Load software using TFTP/FTP through Ethernet port



Caution

- The PC and the TFTP/FTP server can be the same device.
- Each S5810 series switch provides a management Ethernet port, which can operate regardless of the working status of the switching chip. To upgrade the Boot ROM program or load application files when the switching chip fails to operate normally, you are recommended to use the management Ethernet port.
- The TFTP/FTP server program is not provided with the S5810 series. Make sure that it is available by yourself.

2) Run the TFTP Server program on the sever

Run TFTP Server on the server connected with the switch's Ethernet port, and specify the path of the application file to be downloaded.

3) Run the terminal emulation program on the PC connected with the switch's console port. Start the switch and enter the Boot ROM menu. Then enter the protocol parameter setting menu.

If you want to load the Boot ROM file, enter **6** in the Boot ROM menu after the system displays "Enter your choice(0-9):" to enter the Boot ROM update menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu

Enter your choice(0-3):
```

4) Enter the protocol parameter setting menu

Enter **1** to update the complete Boot ROM file, and then enter the protocol parameter setting menu.

```
Bootrom update menu:

1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu

Enter your choice(0-3):
```

5) Configure the switch to upload the Boot ROM file through TFTP

Enter **1** to update the Boot ROM file using TFTP, and then set the TFTP parameters.

```
Load File Name     :update.bin
Server IP Address  :10.10.10.2
Local IP Address   :10.10.10.3
Gateway IP Address :
```

The parameters are described in Table 5-5.

Table 5-5 Description of the TFTP parameters

Item	Description
Load File Name :	Name of the file to be downloaded (for example, **update.bin**)
Server IP Address :	IP address of server (for example, 10.10.10.2)
Local IP Address :	IP address of the switch (for example, 10.10.10.3)
Gateway IP Address :	IP address of the gateway (suppose it is not specified)

Note

- Enter the file name and IP addresses based on the actual condition.
- If the switch and the server are on the same network segment, you can specify any unused IP address of the network for the switch without specifying the gateway's IP address; if they are not on the same segment, you need to specify the gateway's IP address so that the switch can communicate with the server.

6) Update the Boot ROM file on the switch

Enter the corresponding parameters based on the actual condition. The system displays the following information:

```
Loading.....................................................................
.....................................................................
.............................Done!
Will you Update Basic BootRom? (Y/N):Y
```

The system asks you whether you want to update the basic Boot ROM section. Click **Y**. Then the system displays the following information after the update is complete:

```
Updating Basic BootRom..........Done!
Updating extended BootRom? (Y/N):Y
```

The system asks you whether you want to update the extended Boot ROM section. Click **Y**. Then the system displays the following information after the update is complete:

```
Updating extended BootRom.........Done!
```

7) Restart the switch to make the updated Boot ROM file effective

Press any key to return to the Boot ROM update menu.

```
Press enter key when ready
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
```

```
0. Return to boot menu
Enter your choice(0-3):
```

Enter **0** to return to the Boot ROM menu, and then enter **0** again. After that, the device is restarted and the updated Boot ROM file becomes effective.

Loading an application file

To load an application file of the switch, enter **1** in the Boot ROM menu. The system displays the following information:

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
Enter your choice(0-3):3
```

You can enter **1** to load the application file.

The procedure of loading an application file is similar to that of upgrading the Boot ROM program. The difference lies in that the system displays the prompt of loading the application file rather than upgrading the Boot ROM program.

After loading the application file, the switch displays that you should configure the application attribute, that is, **main**, **backup**, or **none**. Type a specific attribute to complete loading the application file.

```
Writing flash.....................................................................
.............Done!
Please input the file attribute (Main/Backup/None) M
Done!
```

Note

If an application file with a specific attribute already exists when you set a new file with the attribute, the attribute of the existing file becomes **none** after the new file becomes effective.

Loading Software Using FTP Through Ethernet Port

Introduction to FTP

The switch can serve as either an FTP server or an FTP client by using its Ethernet port to download the system application and configuration files. The switch serves as an FTP client in the following examples.

Upgrading the Boot ROM program

Note

When upgrading the Boot ROM program, the switch can serve only as an FTP client.

Complete the following tasks to upgrading the Boot ROM program using FTP through an Ethernet port (For details about the HyperTerminal, refer to Setting Terminal Parameters on page 4-2):

Task	Remarks
Set up the configuration environment	Required Connect the switch to the TFTP server through an Ethernet port, and to a PC through the console port. The PC and the TFTP server can be the same device.
Run the FTP Server program on the server	Required
Run the terminal emulation program on the PC connected with the switch's console port. Start the switch and enter the Boot ROM menu, and then enter the protocol parameter setting menu.	Required Log in to the switch through the HyperTerminal and configure the protocol for uploading the Boot ROM file.
Enter the protocol parameter setting menu	
Configure the switch to load the Boot ROM file through FTP	
Update the Boot ROM file on the switch	Required Update the Boot ROM file on the switch.
Restart the switch to make the updated Boot ROM file effective	Required Restart the switch to make the updated Boot ROM file effective.

1) Set up the configuration environment

Connect an Ethernet port (GigabitEthernet 1/0/25, for example) of the switch to the server (whose IP address is available) that provides the file (usually the **.bin** file) to be downloaded, and connect the console port of the switch to a PC, as shown in Figure 5-8.

2) Run the FTP Server program on the server

Run FTP Server on the server connected with the switch's Ethernet port, configure the FTP username and password, and specify the path of the application file to be downloaded.

3) Run the terminal emulation program on the PC connected with the switch's console port. Start the switch and enter the Boot ROM menu, and then enter the protocol parameter setting menu.

If you want to load the Boot ROM file, enter **6** in the Boot ROM menu after the system displays "Enter your choice(0-9):" to enter the Boot ROM update menu.

```
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu
Enter your choice(0-3):
```

4) Enter the protocol parameter setting menu

Enter **1** to update the complete Boot ROM file.

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
```

```
Enter your choice(0-3):
```

5) Configure the switch to load the Boot ROM file through FTP

In the protocol parameter setting menu, enter **2** to update the Boot ROM file using FTP, and then set the FTP parameters.

```
Load File Name     :update.bin
Server IP Address  :10.10.10.2
Local IP Address   :10.10.10.3
Gateway IP Address :0.0.0.0
FTP User Name      :5810
FTP User Password  :123
```

The parameters are described in Table 5-6.

Table 5-6 Description of the FTP parameters

Item	Description
Load File Name :	Name of the file to be downloaded
Server IP Address :	IP address of the PC
Local IP Address :	IP address of the switch
Gateway IP Address :	IP address of the gateway
FTP User Name	Username for logging in to the FTP server, which should be consistent with that configured on the FTP server.
FTP User Password	Password for logging in to the FTP server, which should be consistent with that configured on the FTP server.

Note

- Enter the file name and IP addresses based on the actual condition.
- If the switch and the server are on the same network segment, you can specify any unused IP address of the network for the switch without specifying the gateway's IP address; if they are not on the same segment, you need to specify the gateway's IP address so that the switch can communicate with the server.

6) Update the Boot ROM file on the switch

Enter the corresponding parameters based on the actual condition. The system displays the following information:

```
Will you Update Basic BootRom? (Y/N):Y
```

The system asks you whether you want to update the basic Boot ROM section. Click **Y**. The system displays the following information after the update is complete:

```
Updating Basic BootRom..........Done!
Updating extended BootRom? (Y/N):Y
```

The system asks you whether you want to update the extended Boot ROM section. Click **Y** and then the system displays the following information after the update is complete:

```
Updating extended BootRom.........Done!
```

7) Restart the switch to make the updated Boot ROM file effective

Press any key to return to the Boot ROM update menu.

```
Press enter key when ready
1. Update full BootRom
2. Update extended BootRom
3. Update basic BootRom
0. Return to boot menu
Enter your choice(0-3):
```

Enter **0** to return to the Boot ROM menu, and then enter **0** again. After that, the device is restarted and the updated Boot ROM file becomes effective.

Loading an application file

To load an application file of the switch, enter **1** in the Boot ROM menu. The system displays the following information:

```
1. Set TFTP protocol parameter
2. Set FTP protocol parameter
3. Set XMODEM protocol parameter
0. Return to boot menu
Enter your choice(0-3):3
```

You can enter **2** to load the application file.

The procedure of loading an application file is similar to that of upgrading the Boot ROM program. The difference lies in that the system displays the prompt of loading the application file rather than upgrading the Boot ROM program.

After loading the application file, the switch displays that you should configure the application attribute, that is, **main**, **backup**, or **none**. Type a specific attribute to complete loading the application file.

```
Writing flash.....................................................................
.............Done!
Please input the file attribute (Main/Backup/None) M
Done!
```

Note

If an application file with a specific attribute already exists when you set a new file with the attribute, the attribute of the existing file becomes **none** after the new file becomes effective.

Loading Software Through CLI

By connecting a terminal to the switch, you can upgrade the Boot ROM program and load application files of the switch remotely through CLI.

Loading Software Through USB Interface

Each S5810 series switch provides a USB interface on its front panel. You can download the Boot ROM and application files to a removable storage device (such as a USB flash disk), and load the file through the USB interface.

Suppose the Boot ROM and application files are stored in the file named **update.bin**, follow these steps to load the files from the USB flash disk.

Step1 Plug the USB flash disk containing the **update.bin** file in the USB interface of the switch.

Step2 Copy the **update.bin** file to the flash memory of the switch.

```
<H3C> cd flash:
<H3C> copy usba:/upadate.bin update.bin
```

Step3 Remove the USB flash disk, and then load the Boot ROM file.

```
<H3C> bootrom update file update.bin slot 1
This command will update bootrom file, Continue? [Y/N]:y
  Now updating bootrom, please wait....
```

Step4 Load the application file, and specify the file as the main program file.

```
<H3C> boot-loader file update.bin slot 1 main
This command will set the boot file. Continue? [Y/N]:y
  The specified file will be used as the main boot file at the next reboot on sl
ot 1!
<H3C> display boot-loader
Current boot app is:  flash:/update.bin
Next main boot app is:     flash:/update.bin
Next backup boot app is:   flash:/update.bin
<H3C> reboot
```

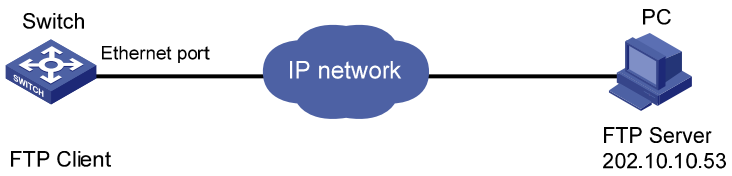
Note

- After loading the application file, use the **reboot** command to restart the switch to make the update take effect (make sure you have saved other configurations before restart).
- If the flash memory does not have enough space, you can load the Boot ROM file first, and then delete certain application files from the flash memory (you are recommended to delete the unused host program files); then, load the application file to the switch through FTP for update.
- Avoid any power failure during the loading process.

Loading Software Using FTP

As shown in Figure 5-9, run FTP Server on the local host, configure username **admin** and the password, and specify the path of the file to be downloaded (suppose the IP address of the FTP server is 202.10.10.53). Then, telnet to the switch and send the host program file to the switch using FTP.

Figure 5-9 Load software through FTP



Suppose the Boot ROM and application files are stored in the file named **update.bin**, follow these steps after you telnet to the switch.

Step1 Download the file to the switch using FTP.

```
<H3C> ftp 202.10.10.53
Trying ...
Press CTRL+K to abort
Connected.
220 WFTPD 2.0 service (by Texas Imperial Software) ready for new user
User(none):admin
331 Give me your password, please
Password:
230 Logged in successfully
[ftp] get update.bin update.bin
[ftp] bye
```

Step2 Upgrade the Boot ROM program.

```
<H3C> bootrom update file update.bin
  This command will update bootrom file, Continue? [Y/N]:y
  Now updating bootrom, please wait...
```

Step3 Load the application file, and specify the file as the main program file.

```
<H3C> boot-loader file update.bin main
  This command will set the boot file. Continue? [Y/N]:y
  The specified file will be used as the main boot file at the next reboot on slot 1!
<H3C> display boot-loader
Current boot app is:  flash:/update.bin
Next main boot app is:     flash:/update.bin
Next backup boot app is:   flash:/update.bin
<H3C> reboot
```

Note

- After loading the application file, use the **reboot** command to restart the switch to make the update take effect (make sure you have saved other configurations before restart).
- If the flash memory does not have enough space, you can load the Boot ROM file first, and then delete certain application files from the flash memory (you are recommended to delete the unused host program files); then, load the application file to the switch through FTP for update.
- Avoid any power failure during the loading process.

Loading Software Using TFTP

Loading a file through TFTP is similar to loading a file through FTP. The switch can serve only as a TFTP client that downloads the file from the TFTP server to its flash memory. The procedure after download is the same as loading the file remotely through FTP.

6 Maintenance and Troubleshooting

Software Loading Failure

If loading new version software fails, the system runs steadily using the original system files. In this case, check whether the physical ports are properly connected.

- If not, reconnect them correctly and restart the loading procedure.
- If so, view the loading procedure information displayed on the HyperTerminal to check for input errors. If there is any input error, restart the loading procedure with correct input.

Common input errors include:

- Fail to set the baud rate of the HyperTerminal to 9,600 bps when loading files at a baud rate other than 9,600 bps through XMODEM.
- Enter an incorrect IP address, software name, or path of the TFTP server when using TFTP.
- Enter an incorrect IP address, software name, username, or password when using FTP.

If software loading fails when there are neither physical connection problems nor input errors, please contact your sales agent for help.

Password Loss

User Password Loss

If you have forgotten the user password, you can enter the Boot ROM menu:

```
   BOOT  MENU


1. Download application file to flash
2. Select application file to boot
3. Display all files in flash
4. Delete file from flash
5. Modify BootRom password
6. Enter BootRom upgrade menu
7. Skip current configuration file
8. Set BootRom password recovery
9. Set switch startup mode
0. Reboot

Enter your choice(0-9):
```

Enter **7**, and then restart the switch. After the switch is restarted, the user password is removed.

Boot ROM Password Loss

Please contact your sales agent.

Power Module Failure

Hot Swappable Power Module Failure

The S5810 series switches support hot swappable power modules. You can check whether the power system of the switch runs normally by viewing the PWR1 or PWR2 LED on the front panel and of the switch the LED on the power module.

- For details about the PWR1 and PWR2 LEDs on the front panel of the switch, refer to Table 1-11.
- For details about the LED on a hot swappable power module, refer to *H3C PSR300-12A & PSR300-12D1 Power Modules User Manual*.

When the power supply system functions normally, the corresponding power module LEDs should be steady green. Otherwise, check whether

- The power module is switched on. (If the power module provides no switch, ignore this step.)
- The switch power cord is properly connected.
- The power supply meets the requirement.
- The operating temperature of the switch is normal and proper ventilation is ensured for the power module.

Note

If the cause cannot be located in the preceding steps and the problem persists, you need to contact your local sales agent or service engineer.

To replace a hot swappable power module, refer to Installing a Power Module on page 3-8.

Fan Failure

You can check the system status LED and the seven-segment LED of an S5810 series to determine whether the fans operate normally. If a fan failure occurs, the two LEDs give an indication, as shown in Table 6-1.

Table 6-1 Fan failure LEDs description

LED	Mark	State
System status LED	SYS	Steady red
Seven-segment LED	Unit	The LED displays **F** for fan failure. 

Note

Only when the system status LED and the seven-segment LED are displayed as steady red and F respectively does it indicate a fan failure.

The S5810 series use hot swappable fan trays. When a fan tray failure occurs, you can follow these steps to replace the fan tray.

Removing a Fan Tray

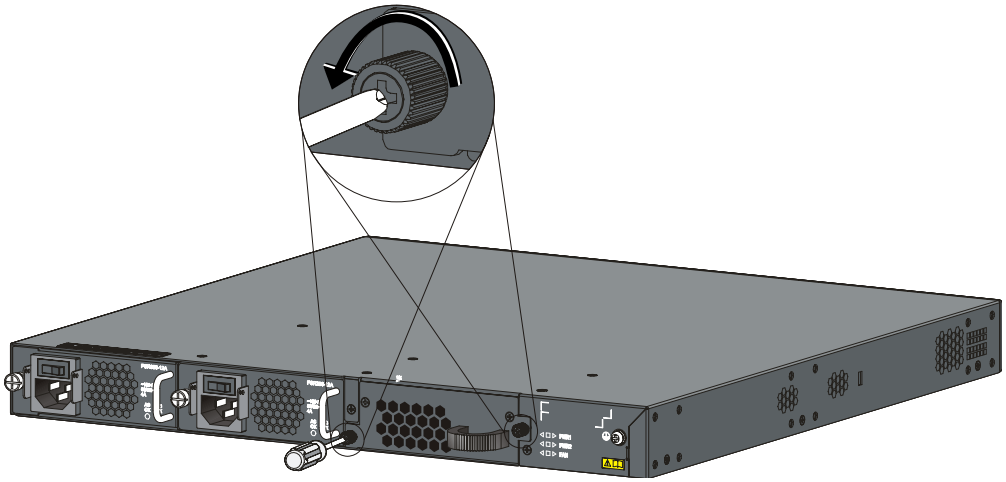
Caution

You can replace a hot swappable fan tray without powering off the device. To prevent overheat, you are recommended to complete replacing the fan tray within two minutes.

---

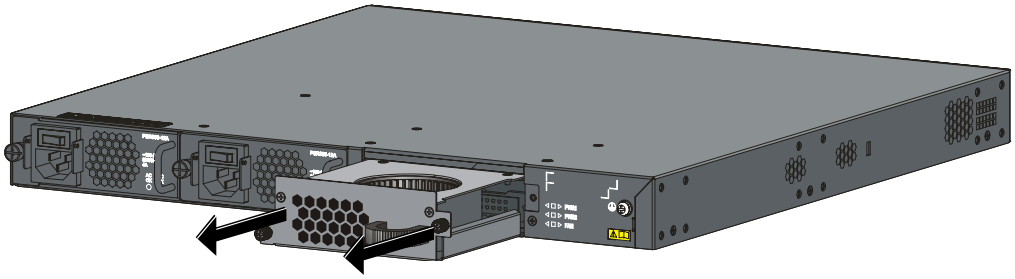
1) Wear an ESD-preventive wrist strap, make sure that the wrist strap has a good skin contact and is well grounded.
2) Loosen the screw on the fan tray with a Phillips screwdriver until the screw is completely separated from the device, as shown in Figure 6-1.

Figure 6-1 Remove an LSW1BFAN (1)



3) Holding the handle of the fan tray with one hand, pull part of the fan tray out. Then supporting the bottom of the fan tray with the other hand, pull it straight out of the fan tray slot along the guide rails, as shown in Figure 6-2.

Figure 6-2 Remove an LSW1BFAN (2)



Caution

To replace a fan tray, pull out the fan tray after it stops rotating. Keep your hands away from fan blades even if the fan stops rotating; otherwise, the dynamic balance of the fan may be broken, and thus the fan noise will be increased.

Note

After removing a fan tray, place it in an antistatic bag.

Installing a Fan Tray

1) Wear an ESD-preventive wrist strap and ensure a good skin contact.
2) Take out the fan tray from the package, and make sure that the fan tray model matches the device model.
3) Holding the handle of the fan tray with one hand and its bottom with the other hand, gently insert the fan tray into the fan tray slot until the fan tray connector well touches the backplane.
4) Fasten the screws with a Phillips screwdriver until the fan tray is well seated in the chassis.

Caution

- You can replace a hot swappable fan tray without powering off the device. To prevent overheat, you are recommended to complete replacing the fan tray within two minutes.
- To avoid damaging the connectors on a fan tray and backplane, slowly insert the fan tray. If you feel hard when inserting the fan tray, plug out the fan tray and insert it again.
- If the captive screw cannot be tightly fixed, check the installation of the fan tray.

Configuration Terminal Failure

After the switch is powered on and the system is normal, the booting information will be displayed on the configuration terminal. If the configuration system has any faults, there will not be any screen display at the configuration terminal or the displayed characters will be totally illegible.

Troubleshooting when there is no terminal display

If there is no output information after the configuration is powered on, please check whether:

- The power supply is normal
- The console cable is properly connected

If no problems are found after the above-mentioned items have been checked, the cause may lie in the console cable or the settings of the terminal (such as HyperTerminal) parameters. Please perform the corresponding check.

Troubleshooting when the terminal display is illegible

If there is illegible display at the configuration terminal, the cause might lie in the parameter setting error at the terminal (such as HyperTerminal). Verify the following terminal parameter (such as hyper terminal) settings:

- Baud rate: 9,600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none
- Emulation: VT100.

Table of Contents

Appendix A Lightning Protection of the Switch A-1

Installation of Lightning Arrester for AC Power (Socket Strip with Lightning Protection) A-1

Appendix A Lightning Protection of the Switch

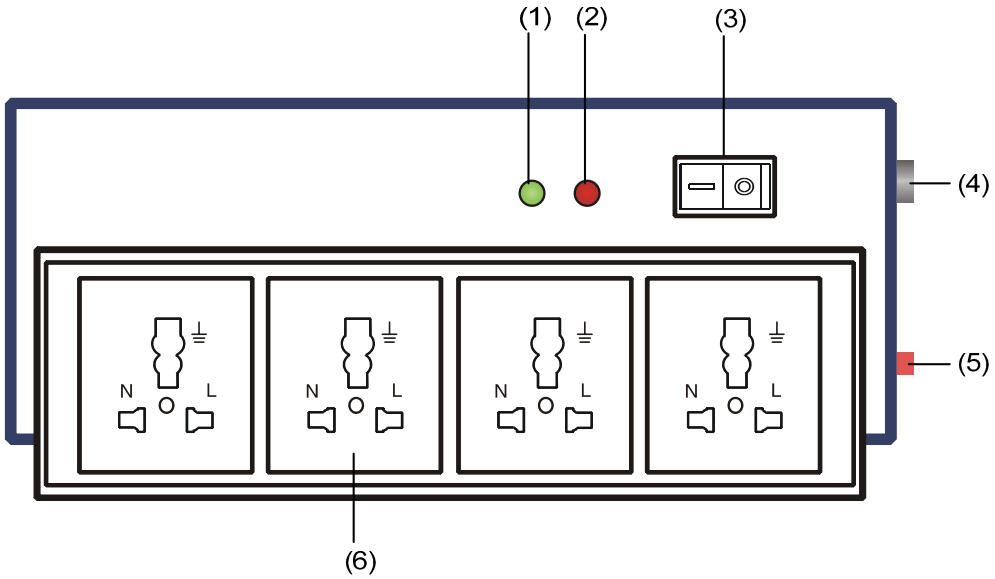
Installation of Lightning Arrester for AC Power (Socket Strip with Lightning Protection)

Caution

Lightning arrester will not be shipped with the switch. You should purchase it by yourself if needed.

If an outdoor AC power cord should be directly led to the switch, please serially connect the lightning arrester for AC power (Socket Strip with Lightning Protection) before you plug AC power cord into the switch, thus to prevent the possible damage to the switch due to lightning strike. You can use cable clips and screws to fasten the lightning arrester for AC power on the cabinet, workbench or the wall of equipment room.

Figure A-1 Diagram of lightning arrester



(1) Working LED (green)	On means the circuit is working normally; off means the circuit is damaged.
(2) Grounding/pole detection LED (red)	On indicates a wrong wire connection (the wire is not grounded or the live line and null line are reversely connected), and you need to check the power supply line.
(3) Power switch	
(4) IEC standard socket	It is used to connect to the power supply in the equipment room through a power cord.
(5) Overload automatic protector	It can reset automatically.
(6) Multifunctional socket	It is used to connect the power module of the device.

Caution

- Make sure that the arrester is well grounded before using the lightning arrester for power.
- After inserting AC power cord plug of switch into the socket of lightning arrester, if the green LED is on and the red LED does not alarm, it means that the lightning arrester of power is running and the function of lightning protection has taken effect.
- Pay adequate attention if the red LED is on. You should correctly locate the problem, whether it is caused because the ground wire of the arrester is not well grounded or because the live and zero wires are connected in reverse direction. You may check that in the following way. When the red LED is on, use a multimeter to examine polarity at the power socket of the arrester. If it is same to that of the power socket in the equipment room, it means that arrester is not well grounded. If it is adverse to that of the power socket in the equipment room, it means that the power socket of the arrester is set to the reverse polarity. In this case, you should open the power socket of arrester to correct polarity. After that, if the red LED still alarms, it means that the arrester is not well grounded yet.